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UPPER HUDSON RIVERS AND ESTUARIES SATELLITE CENTER

Madison Street, Troy, New York

Strategic Development Plan

This report was prepared for the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund.

HUDSON RIVERS AND ESTUARIES SATELLITE CENTER

Strategic Development Plan

© 2005 J. Kenneth Fraser and Associates, PE, LS, LA, P.C.
22 High Street
Rensselaer, New Rensselaer, New York 12144
Phone 518.463.4400 • Fax 518.432.6741

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Introduction

The Upper Hudson Rivers and Estuaries Satellite Center provides the City of Troy a link to the worldwide community through the scientific research to be conducted to the benefit of river estuaries around the globe.

The Upper Hudson Rivers and Estuaries Satellite Center (UHRESC) is named for the state of the art estuarine research facility to be developed on the site, but the project will go beyond the development of the Satellite Center. The mission for the site and building rehabilitation project includes development of a plan that can provide benefits to the citizens of South Troy and beyond. Other key plan elements will be the creation of public access to the Hudson River and Poestenkill Creek; connectivity for the riverfront trail and Poestenkill Greenway trail through the site; and adaptive re-use of the existing buildings.

In 2001, Governor Pataki launched the idea of a global center located on the Hudson River, devoted to research and education about rivers and estuaries. A comprehensive Strategic Team of educators, planners, scientist and the general public was assembled to explore the idea and dedicated two years towards creation of the Rivers and Estuaries Center on the Hudson Strategic Plan. The Plan outlines the Center and its larger mission as well as establishing necessary site criteria for its location. This Plan also details the need for satellite centers along the Hudson, to broaden both the research parameters, and the project's educational potential. One of these Satellite Centers is proposed for the waterfront of the City of Troy. The Upper Hudson Rivers and Estuaries Satellite Center (UHRESC) to be located at the confluence of the Hudson River and Poestenkill Creek is to be a collaborative effort of the City of Troy, Rensselaer (RPI), and the Rivers and Estuaries Center.

Much city planning work has set the stage for creation of the UHRESC. The careful analysis done during preparation of the local Comprehensive Plan and the South Troy Working Waterfront Revitalization Plan well underway positioned the City of Troy to provide an ideal location for the project. The South Troy Working Waterfront Revitalization Plan mapped a development strategy for the increasingly vacant industrialized shoreline of South Troy that identified several potential sites including the Scolite parcel as key sites for waterfront redevelopment efforts. Troy's purchase of the 5.7 acre Scolite site in 2001 helped solidify the parcel as a prime location for the Center, and ensured that the future development of the site would be planned with the participation of private, institutional and business citizens from Troy.

FIGURE 1: **An aerial image from the New York State GIS Clearinghouse showing South Troy. The strategic plan geographic limits for the UHRESC include the primary study are the 'Scolite' site and areas shaded in a light color and the dark shaded secondary study area.**

The UHRESC strategic plan project began in October 2004, funded in part by the City of Troy, an EPF Grant from the LWRP of the Department of State, and Rensselaer Polytechnic Institute (RPI). Planning partners were the City, Rensselaer RPI, and the Rivers & Estuaries Center in Beacon. The consultant team led by J. Kenneth Fraser and Associates of Rensselaer features architects, Mesick Cohen Wilson Baker, (Albany), Ryan Biggs (Troy), Mueser Rutledge of NYC, Fred Dente (Watervliet), Evergreen (Watervliet) and Hartgen Archeological Associates was selected to prepare the plan. The planning project outreach included several public workshops and an advisory committee made up of local citizens, politicians and business owners.

The objectives of this plan, to develop the 5.71 acre site as home for the Upper Hudson Rivers and Estuaries Satellite Center, a public recreation amenity, a public access point to the River and Poestenkill and a key link to the Riverfront and Poestenkill Corridor Greenway trails. Other uses were anticipated, but developed later as a result of public participation and several plan workshops.

FIGURE 2: Aerial photograph from the New York State GIS Clearinghouse of the project site and buildings is bounded by Bruno Machine Works opposite Madison Street to the south, the Hudson River, Poestenkill Creek and a CSX rail right-of-way. A scrap operation visible in this photo is still leasing the site from the city at present.

Chapter 1

Existing Site Conditions

The Upper Hudson Rivers and Estuaries Satellite Center is located in South Troy along a riverfront where the early American steel industry once flourished. What remains are a few hulking deteriorating mill buildings, gritty railroad yards and a lively working class residential neighborhood..

The grid-iron street pattern is interrupted by railroad tracks that run north to south, one block inland of the river, cutting the neighborhood off from the industrial riverfront. Hudson River access historically has been limited to non-existent in South Troy. Monroe Street and Madison Street, and recently Main Street provide the only publicly owned access points to the river. Conditions are poor and public amenities are lacking at those locations.

FIGURE 3: A panorama of several photos illustrating the view of the UHRESC site as approached from Madison Street, presently the only vehicular access route to the site.

While much of the South Troy Riverfront is and will remain industrial, the City has carefully sought to increase access to the river through purchases of land, purchase of easements and incentives to landowners. Key to the improved

shoreline image in South Troy is the South Troy Riverfront Bikeway and Walkway which will be constructed in an easement from the Menands Bridge to downtown. The Poestenkill Creek and Wynantskill Creek Corridors provide exceptional opportunities to link the upland neighborhoods of South Troy to the river via attractive greenways. The Satellite Center site at the Poestenkill and Hudson confluence is at one the public rights-of-way, Madison Street, that extends to the river. That factor makes this site a critical opportunity for the realization of public riverfront access in South Troy.

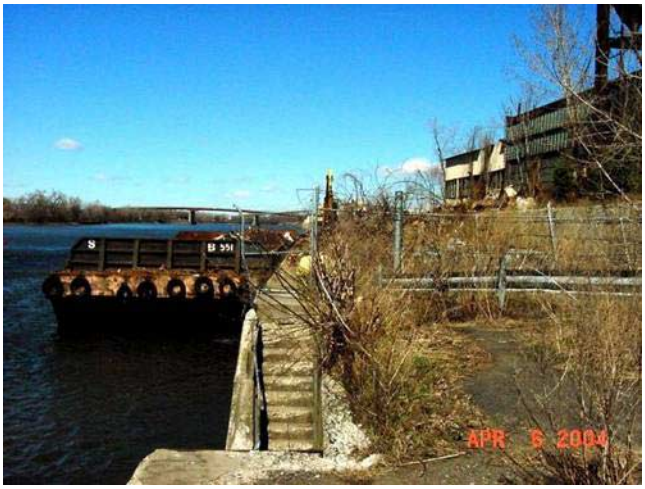


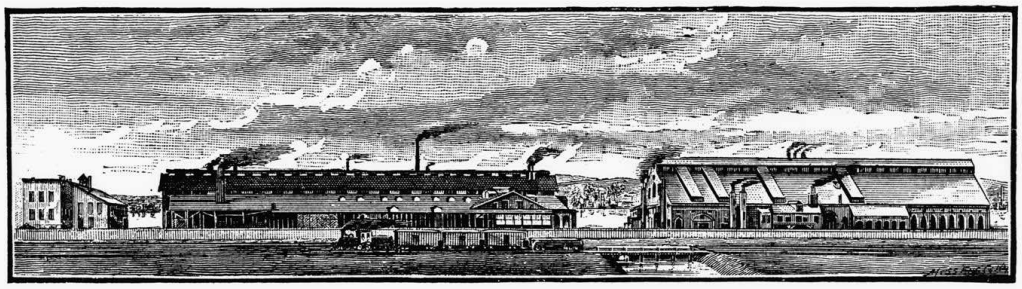
FIGURE 4: Access to the Hudson River at the foot of Madison Street includes a concrete bulkhead and concrete stairway to the shoreline. The spot is popular with fisherman, especially in the spring when herring, shad and striped bass are running.

Situated a few blocks south of downtown Troy, the site offers an opportunity to initiate a more steady transition from heavy industry to downtown commerce than what exists at present. That transition has been a goal of the city and has begun in the South Troy Industrial Park, site of the former Burden Iron Works, where an industrial laundry and truck terminal have been built.

Site History

The UHRESC site, prior to European settlement, was low lying marshland and alluvial sediment deposited by the Poestenkill Creek. European settlers established farms in these low lying lands and the Satellite Center site was once part of a farm owned by Stephan Schuyler[1]. As the city began to develop as an important river commercial port city and early steel industry center, the flood plains along the river were filled and industrial buildings, bulkheads and piers were built.

A series of steel mill operations were constructed on the site beginning in 1846 with a rolling mill owned by Troy Vulcan Corporation[2]. The rolling mill was sold several times and in 1862, while owned by the Rensselaer Iron Works, plates and rivets used on the Union ironclad Monitor were manufactured there[3]. Near the turn of the 20th century, the mill was closed and Ludlow Valve purchased the site and buildings, continuing to operate there until 1968. Scolite purchased the property in 1970's and sold the property to the City in 2001.



WORKS ON THE POESTEN KILL.

FIGURE 5 : A lithographic view of the Rensselaer Iron Works from the River.

None of the original early 19th century buildings remain on the site and in January 2005 the oldest remaining 1860's era building was destroyed by an arson fire. The contemporary industrial building located at the foot of Madison was built by Ludlow Valve sometime in the mid 20th century.

[1] **Hartgen Archeological Associates, Phase IA Literature Rivers and Sensitivity Assessment UHRESC, April 2005, P. 13.**

[2] Ibid

[3] Ibid

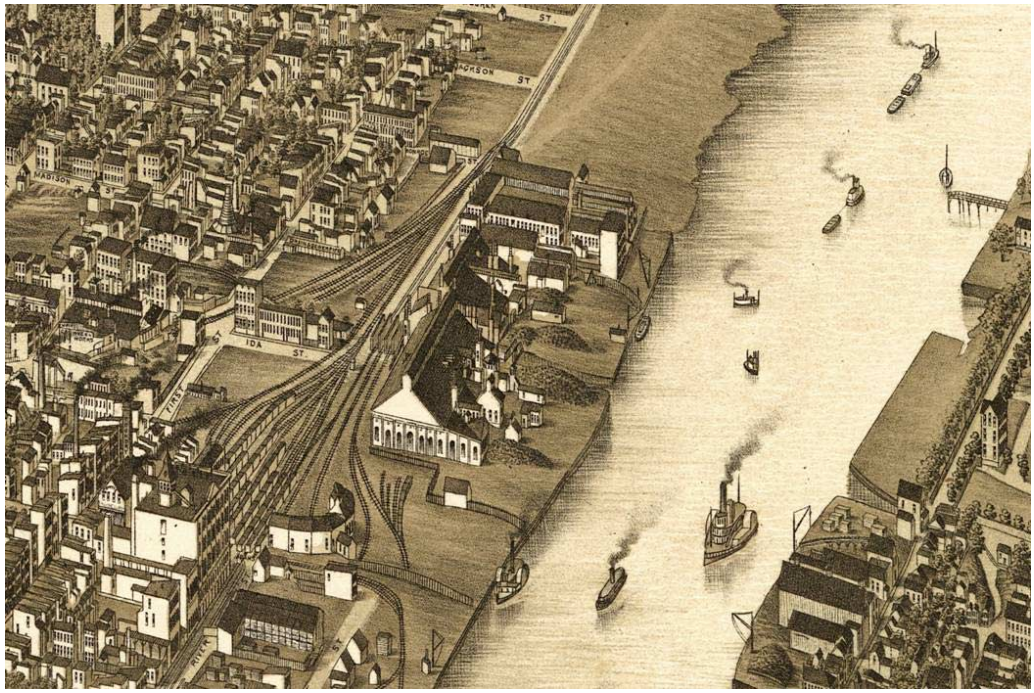


FIGURE 6: An aerial panorama rendered by the Burleigh Company in the late 19th Century depicts the complex of mills that straddled the Poestenkill Creek at the time.

Existing Buildings

The site buildings represent an interesting mix of architecture that spans several eras and styles of industrial structures. Unfortunately, the site's architectural diversity was significantly diminished when Building B was lost to an arson fire in early 2005. The major buildings (H and A) help enclose a courtyard space that is open to the Hudson River and Poestenkill Creek. All the structures are brick masonry industrial architecture, including a 60' smoke stack near Building G. The buildings are in varying states of deterioration, and in the case of Building A, sound in some areas and severely deteriorated elsewhere.

FIGURE 7: Building identification key map.

Building A

At about 50,000 square feet, the building is the largest of the structures and features a tall broad central aisle with one story side aisles on either side consisting of masonry bearing walls with a steel framework. The long lower facades are lined with two windows for every 16' bay and continuous clerestory windows between the lower and upper roof creates a potentially bright and airy interior. The roof of the central bay is in good condition, while the roofs on the side bays are collapsed in a number of locations. The façade is intact but in need of re-pointing and structural

FIGURE 8: Building A.

steel frame is sound.

Building B

A masonry and timber framed building that was attached to Building A, the structure was the oldest building on the site. The building most recently held some historic artifacts, including molds from Ludlow Valves, formerly manufactured on the site. Building B was razed following the fire.

FIGURE 9: Building B prior to its destruction. Photograph by Mesick Cohen Wilson Baker Architects.

Building C

This one story masonry structure is attached to the north end of Building A. The roof is partly collapsed. The building's 7,700 SF was most recently used for bulk and equipment storage. An apparently functioning forklift is in the building.

FIGURE 10: Building C.

Building D/E

Attached to the west façade of Building A is a complex of small structures. About 3,100 square feet, these one story masonry additions housed utility rooms and offices. They appear reasonably intact but do not contribute historically to Building A.

FIGURE 11: Buildings D and E.

Building F

A collapsed roof has resulted in irreversible damage to this building. It is probably not worth restoration efforts.

FIGURE 12: Collapsed roof of Building F. Photograph by Mesick Cohen Wilson Baker Architects.

Building G

A small 2,300 SF building, this structure appears in excellent condition. The building houses some important historical industrial artifacts including a large flywheel.

FIGURE 13: Building G is situated behind the smokestack.

Building H

The other major structure on the site is characterized by its wedding cake architecture. The 11,000 SF building has an open airy industrial interior and is structurally sound.

FIGURE 14: Building H. Building K is in the foreground.

Building J

A 2,200 SF addition to Building H that does not contribute architecturally and appears unsound, this building could be a candidate for demolition.

FIGURE 15: Building J.

Building K

Building K is a small building next to Madison Street that has no value and could be demolished.

A detailed Architectural and Structural Report for the site structures was prepared by Mesick Cohen Wilson Baker and Ryan Biggs Associates appears in Appendix F. This report includes more detailed information about the conditions of the structures as well as extensive photography and scale drawings.

Existing Site and Underground Utilities

The site is typical of former 19th century industrial land. It is flat, barren and lacking in any natural clues to it's location at the confluence of two major water courses. Along the outer boundaries of the site and buildings, emergent species of grasses, invasive perennials and trees have grown in the gravely soils and in some cases, into the site structures. Some evergreens and ornamental species have

been planted riverside of Building H. The interior portions of the site are barren earth and gravel. Large piles of scrap metal, large metal tanks, dumpsters and junked vehicles litter the site. A 60' tall brick masonry smoke stack provides a major vertical visual element on the site. The site is flat to gently sloping, with an 8 foot change in grade between the riverside bulkhead and remainder of the site taken up by a retaining wall west of Building H, and a slope to the north.

Sanitary service appears to be from a combined storm/sanitary sewer on Madison Street. A manhole in the center of the site collects sanitary from laterals coming from Buildings A-G. Building H, J, and K are connected directly via a lateral into a manhole in Madison Street. Water service is from a 6 inch line in Madison Street. Mapping indicates a loop of unknown size rings the complex of Buildings A-G, with stubs towards the river and to the Poestenkill. There is no provision for storm drainage on the site.

River and Shoreline

The unique shorelines of the Hudson and Poestenkill adjacent to the project site create an opportunity for significant public access to both water bodies. Both shorelines are bulk headed, the material and condition of the bulkheads varies from the foot of Madison Street to CSX rail right-of-way.

Along the Hudson shoreline, a concrete bulkhead exists. According to Mueser Rutledge Consulting Engineers, who inspected the structure, it is in good condition and there is little evidence of displacement in the wall indicating that it is functioning well and it's foundation is intact. Surface spalling exists at the water line, but this has no impact on the wall's structural integrity. The concrete bulkhead was built along the first 80' of the Poestenkill Creek shoreline.

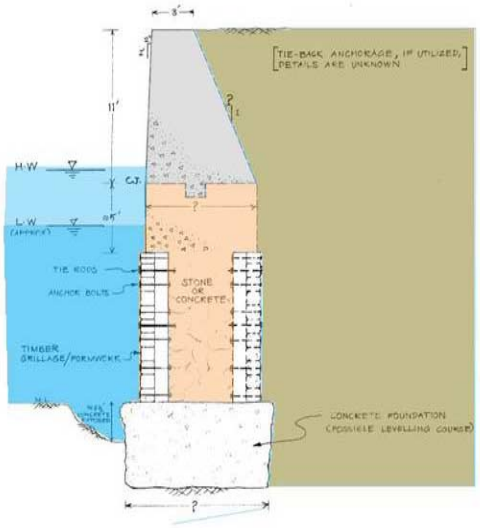


FIGURE 16: Section of the concrete bulkhead prepared by Meuser Rutledge Consulting Engineers.

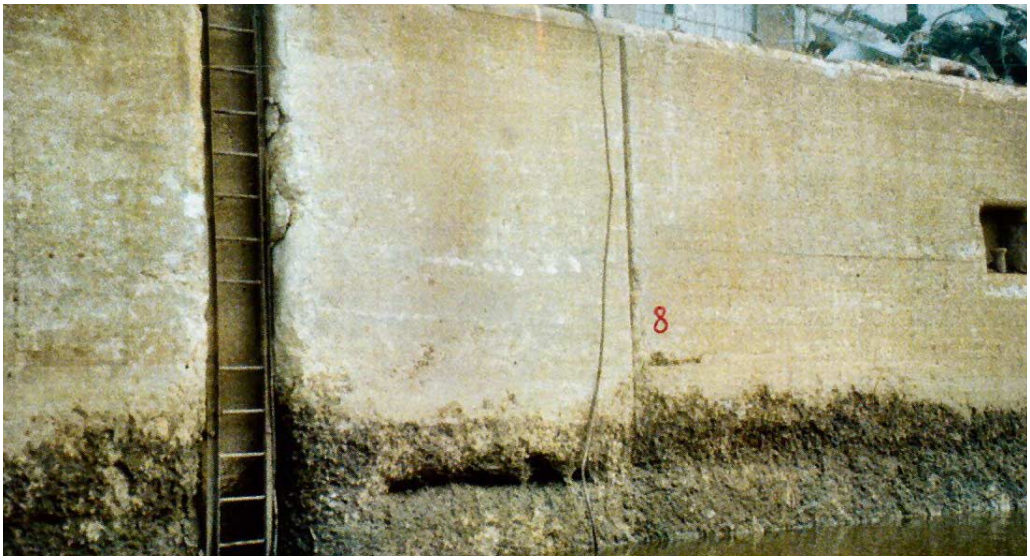


FIGURE 17: Spalling on the concrete bulkhead is surficial and does not indicate a structural problem. Photograph by Mueser Rutledge Consulting Engineers.

Most of the remaining Poestenkill shore is retained with a steel sheet piling system. Mueser Rutledge Consulting Engineers inspected the structure and as a result have raised caution flags about the deterioration of structural elements of this sheet piling system. Wales and tie backs of the steel pilings are deteriorated or completely lost, which could lead to a failure of the pilings. The potential for a failure needs to be addressed in the initial phases of work on the site.

FIGURE 18: Deteriorated wales (horizontal steel) and tie-backs on the Poestenkill Creek sheet pilings. Photograph by Meuser Rutledge Engineers.

The Hudson River bottom was sounded from the bulkhead to the approximate center of the river, revealing significant depth along the concrete bulkhead. A shallow shoal with a depth (from mean high water) of 2.6' is situated near the mouth of the Poestenkill Creek. The bottom tapers from that alluvial deposit, beginning at the Poestenkill and moving south, down to 9.1 deep over the next 60', and the depth from that point south to the foot of Madison Street varies between 8 and 15 feet deep. The Poestenkill Creek was also sounded and its depth varies adjacent the site from 4-5' (below mean high water).

The Hudson River and Poestenkill Creek adjacent the site are tidal. The mean low water elevation is minus 2.6 feet and the mean high water elevation is + 2.1 feet, resulting in a 4.7 mean difference in water elevation.

Soils

The site is built on mostly fill soils over what was once the river bottom. Dente Engineering performed a geotechnical analysis of the site which included 5 test bores to investigate the subsurface soils. The test bores revealed "... uncontrolled and miscellaneous fill soils ... to depths ranging between 15 and 20 feet. The fills [consist] of a mixture of sand, gravel, silt, slag, organics, and brick with ... traces of glass, plastic, metal and coal."

Below these fill materials, Dente found sand, silt and alluvial outwash deposits. Bedrock was found at depths ranging from 26-52 feet. The prevalence of organic materials mixed with fill soils in the form of decomposed timber is a concern for new structures due to likely uneven settlement as the organic materials continue to decompose.

The complete Geotechnical Report from Dente Engineering appears in Appendix D.

Environmental Concerns

The site's industrial history is indicative of potential for contamination from fuels, organics, lubricants and metals. The site is currently being monitored as part of the city's "Brownfields Pilot Project" (BPP), which is discussed in more detail later in Associated Projects. Dente noted moderate petroleum odors in soil samples taken from boring locations, however better information will be made available from Sterling Environmental who are currently monitoring the site as part of the BPP.

A pre-demolition asbestos survey was conducted by Evergreen Testing and Environmental Services (Appendix G). Asbestos is contained in several areas in two forms, construction materials such as siding and roofing; and insulation materials. Details of the testing and findings are presented in detail in the report. The analysis revealed asbestos containing materials in every building on the site. The majority of the asbestos materials found will require removal before demolition by a qualified asbestos removal contractor. Where demolition is not anticipated, alternative abatement methods for removal can be considered. Some of the asbestos containing insulation found will require removal regardless of the disposition of the structure. This is true of insulation found on pipes, jacketing boilers, and elsewhere. The report indicates that building renovations and demolition work may uncover other asbestos containing materials currently hidden in vapor barriers, caulks and adhesives. Samples of suspect materials should be tested before removal is undertaken. A contingency should be set aside for such testing and potential removal.

Chapter 2

Associated Projects

The Upper Hudson River Estuaries and Satellite Center Project will draw from several local public plans and will implement strategies developed in those plans.

Planning for the proposed Upper Hudson Rivers and Estuaries Satellite Center will benefit from several participatory and well-thought out local planning projects from which to draw information. Among these planning efforts are local South Troy based plans and city-wide plans. The South Troy Working Waterfront Revitalization Plan and the Brownfield Pilot Program have been adopted by the city. Several projects with which the UHRESC project is associated are being implemented including the Riverfront Bikeway/Walkway Trail and the Industrial Road. Other projects are still in the formative stages and the UHRESC project will help establish a development pattern and public access patterns that will benefit both the Poestenkill Greenway Corridor and Hudson River Heritage Center.

FIGURE 19: Canal Street a few blocks from the UHRESC site on the Poestenkill has great potential for a Greenway Trail.

The South Troy Working Waterfront Revitalization Plan (STWWRP) 2000.

The STWWRP by River Street Planning and Development and RKG Associates included an extensive public participation process; and an in-depth economic and real estate development analysis. The plan resulted in changes to City Code in the form of Waterfront Overlay districts in South Troy. Several spin-off projects have resulted including trails, brownfield, and the UHRESC. The plan focused on the industrial South Troy Waterfront from downtown to south of the Menands Bridge (Route 378), and made several recommendations including redevelopment strategies with associated economic impacts. The STWWRP proposed a "Preferred Use Alternative" which suggested that the South Troy waterfront be 56 acres of greenspace and recreation, 50 acres of Commercial Development. The plan established three geographical redevelopment zones, the details of which and philosophy for establishment is now part of the City Code in Articles 4.204 and 4.304. The intent of the new zones is to promote various land use mixes that will have a beneficial economic impact on South Troy. Among STWWRP recommendations that the City has followed through on are purchase of the Scolite site for the UHRESC, zoning modifications and brownfield remediation.

Brownfield Pilot Program (2003 – Present)

The City's Brownfields Pilot Program, underway since 2003, includes a complete Phase I assessment for the entire South Troy Waterfront. The Phase I assessment allowed several South Troy sites to be categorized for an "environmental concern" as either low, moderate or high. This allowed the City to focus testing on sites that were available for redevelopment, a "high" level concern, could benefit the community, and could easily be tested with owner cooperation. Two sites were selected including a former fuel storage facility adjacent the historic Burden Ironworks office (Burden Building) and the UHRESC site.

Testing is currently underway at the UHRESC site by Sterling Environmental and preliminary testing was completed during spring 2005. Once the appropriate

follow-up testing is completed, a remediation plan will be developed. Remediation costs could be significant, but the City will have several opportunities to offset those costs with state and federal brownfields' grant funds. Specific concerns include lead in the soils resulting from bronze coating done on the site; contamination from coal and used by the foundry; PCB's from the railroad yard and scrap yard; and petroleum from motor oil and fuel stored on site or from scrap metals.

South Troy Industrial Park Road (1990's – present)

An industrial park road that provides a more direct truck access route to the industrial sites on the riverfront has been a long term goal of the County, City and general public in South Troy. Such a road will eliminate heavy truck traffic from the residential streets of South Troy. The challenges that have been faced during planning for this road, include the proximity to the CSX railroad and existing buildings as well as the potential impact of dealing with CSX / Conrail.

FIGURE 20: One of the preferred alignments of the Industrial Road would parallel the rail right-of-way and pass within a few feet of Building A.

Several alignments are currently under consideration including several similar solutions that extend the existing South Troy Industrial Road north through private and public industrial land uses adjacent the CSX right-of-way. Several of the feasible alignments place the new road directly east of Building A. The current preferred alignments will necessitate the removal of a portion of the Bruno Machinery Building. It may be necessary to remove a portion of Building

C of the main building complex on the UHRESC site as well. A new bridge will be constructed to cross the Poestenkill Creek adjacent the UHRESC site which will accommodate the road and a 15' wide trail. Coordination of the development plans for the road and UHRESC projects will be essential towards the success of both projects and to ensure that all benefits to local residents are considered.

South Troy Riverfront Bikeway / Walkway Project

The vision of a public greenway trail in South Troy may soon be a reality. This project has been under development in various forms for over a decade. Almost 10 years ago, the City secured easements along the river for the construction of a Riverfront Greenway trail between Main Street and Monroe Street. That project was bid but a contract was not awarded, due to costs and environmental issues uncovered during work at the New Penn site requiring an additional 24" of fill on the existing soils. The project was revitalized as a result of the STWWRP recommendations and is once again being designed to connect Main Street and Monroe, along the river's edge and beyond to connect Burden Avenue through the South Troy Industrial Park, along the river to the Green Island Bridge.

FIGURE 21: The UHRESC project will include a trail connection along the back of the Bruno Machine Works site between the Madison Street and Monroe.

The UHRESC project can make a significant contribution towards the trail by creating a connection along the river beginning at Monroe Street, through Madison and the UHRESC site and finally crossing the Poestenkill Creek. By crossing the Poestenkill near the riverfront a precedent for public access along the riverfront would be established that could serve to carry a contiguous riverfront trail connection north to downtown.

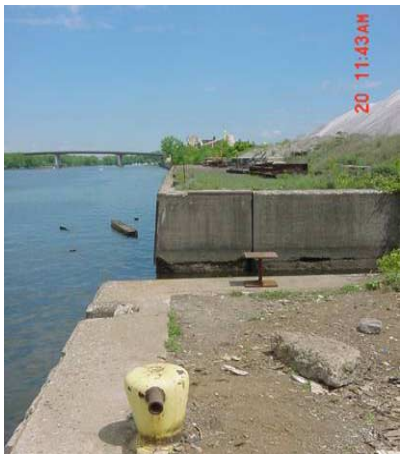


FIGURE 22: The UHRESC project might include a riverfront bridge over the Poestenkill establishing a precedent for public riverfront access to downtown Troy.

Poestenkill Creek Corridor Greenway Trail

A trail connection along the stream corridors that divide the City is another vision that has been reinvigorated as a result of the STWWRP. Development of a biking and walking trail on the Poestenkill will not only provide a trail connection between the riverfront and the residential areas of South Troy, but will also provide a better connection between the river, the neighborhoods and historic Prospect Park. At present there is no preliminary design work underway, however, the UHRESC project scope includes the development of a preliminary master plan concept for this connection.

Figure 23: Canal Street along the Poestenkill is ready-made for an attractive pedestrian and bicycle greenway trail connection.

Hudson River Heritage Center

Directly opposite the Poestenkill Creek from the UHRESC site is vacant industrial land currently used for storage of salt and processing aggregates for paving. The STWWRP envisioned the creation of multi-use development of commercial, recreational and residential land uses that would complement and enhance downtown. The City has been engaged in discussions with several interested parties about the development. It is likely that public access to the shoreline will be a key design criterion. The use of that site is likely to be non-industrial. The UHRESC will probably be under construction before the "Heritage Center" and therefore can firmly establish public access to the shoreline as a key design criterion by linking the two sites with a riverside pedestrian bridge.

The city recently announced some details about the potential use of the site and linked those improvements functionally to the UHRESC. Included in the current proposal is a relocation of the Dudley Observatory and Planetarium to the site. The current proposal also includes construction of three-story lighthouse, creating a major visual element. Heroes Park and the Uncle Sam Monument would be moved to the new park under the proposal.

The project would complement and strengthen the UHRESC development, suggesting that the two sites have great potential for creating an interesting attraction on the South Troy Waterfront.

City of Troy Comprehensive Plan

At present, the latest Comprehensive Plan is not completed. A community Profile/Existing Conditions Report from 2003 is available. This report describes conditions in the City but did not include any analysis or recommendations.

Chapter

3

Site Opportunities

Many opportunities exist to accomplish the UHRESC project goals while addressing site and planning constraints.

The stated goals of the project are to: provide for public access to the river; provide public recreation opportunities; provide facilities for the Upper Hudson Rivers & Estuaries Satellite Center; provide connectivity for trail corridors through the site; and provide additional uses for site buildings that benefit the citizens of Troy. Based on the previously presented information, there are many opportunities to accomplish these goals while creatively addressing site-related or plan-related constraints.

FIGURE 24: The grade change created by the concrete unit wall between the riverfront and Building H might be utilized creatively to attain some project goal.

Soils

The existing soils are unsuitable as top soil, therefore, topsoil should be imported for all landscape areas. Plant selection for trees and shrubs should be compatible with the urban, industrial, droughty nature of the fill materials that will make up the subsoils. If contaminated soils are found, they may need to be removed or encapsulated. Encapsulating might be accomplished with as little as 24" of clean fill over existing soils. Some grading is anticipated on the site, but in general, the interior of the site will most likely be slightly higher than the existing Dente recommends that based on the soil conditions "... new structures should be supported on improved ground or deep foundations that transfer their loads to the underlying inorganic, indigenous granular deposits or bedrock"[4]. The geotechnical concerns are for quantities of organic fill materials in soils which will cause differential settlement. Recent archeological digs east of Building A are indicative of this condition as clear evidence of decomposed timber beams was unearthed. Dente's suggestion as an alternative that for support, structures could jet grout columns, a process by which grout is forced into unstable soils to create a soil cement which provides a suitable footing for building columns.

Soils Opportunities:

- Locate new structures and additions where soils may be contaminated and need to be removed, thus reducing the need for imported fill and providing a more common foundation method;
- A below grade structure such as a fluvarium or storage basement could
- An at grade structure that significantly removes existing soils, such as an amphitheater could be located where soil needs to be removed;;
- In anticipation of the need to encapsulate soils contaminated with non-leaching materials, the addition of 18" of imported subsoil and 6" of topsoil should be anticipated for all landscaped areas.

[4] Geotechnical Evaluation Upper Hudson Rivers and Estuaries Satellite Centers, dated by Dente Engineers.

- Consider LEED Brownfield Redevelopment Credit (LEED 3.0).
- Consider LEED Water Efficient Landscaping Credit (LEED 1.2) for specifying plant materials that will not require irrigation.

Site Drainage

At present there are no on-site storm drainage facilities, only Building H has roof drains. The Building H roof drains apparently connect to a combined sewer which eventually connects to a 37" x 56" brick culvert under Madison Street, and into the river. Since existing soils are fairly porous, most storm water infiltrates into site soils. Such will not be the case on the improved site.

The new Phase II Stormwater Pollution Prevention guidelines will apply to this project, necessitating that storm drainage runoff from the new development does not exceed pre-development peak, and that runoff be treated to remove pollutants. Preventing silt from entering the Hudson and Poestenkill will be especially important during construction and establishment of plantings and lawns. A preliminary assessment by engineers at Fraser have concluded that it may be permissible to route some of the storm drainage directly to the river, however, it may be desirable to minimize this direct routing as discussed below.

Another secondary project goal is to obtain LEED certification for the project, which will require post-development runoff not to exceed pre-development (LEED 6.1) and treatment by infiltration (LEED 6.2). The ability to treat runoff by infiltration will depend on several variables including potential aqueous hazards in soils. It will also be feasible to limit runoff from the post-development site to pre-development levels if infiltration is feasible. Underground storage may be necessary utilizing stormwater chambers.

Drainage Opportunities:

- Utilize soil removal areas for installation of dry well or underground stormwater chambers, reducing need for imported soils;
- Utilize state-of-the-art treatment of site stormwater as an interpretive and demonstration project opportunity related to the UHRESC;
- Consider LEED stormwater credits 6.1 and 6.2 towards obtaining certifications for the project;
- Consider filtering rainwater by way of permeable parking pavement;
- Consider innovative vegetative treatment of runoff utilizing a "rain garden", grass swale or similar approach.

Topography

Topography including soundings data for the River and Poestenkill Creek will present several development opportunities. The interior of the site is fairly consistent and level at around 22' above mean sea level (MSL), then slopes, or is taken up by a block wall, towards the river where the top of bulkhead is at elevation 13.4' (above MSL). Floor elevations are around 24 in all the existing buildings. As a result, it will be advisable to raise the floors above the 100' year flood elevation of 25.2 feet (NAVD 88, Site Survey by E.W. Boutelle dated 3-11 2005).

The river bottom adjacent the site is maintained for navigation by the Army Corps of Engineers. The depth adjacent the concrete bulkhead from around 100 feet south of the Poestenkill to the foot of Madison Street is sufficient for docking large vessels. There appears to be an alluvial fan of sediment directly at the mouth of the Poestenkill, resulting in a shoal that levels off to a depth of around 5 feet. The alluvial deposits appear to be anchored in place by a sunken barge in the Hudson at the confluence with the Poestenkill. The structure is visible at low tides. The bottom elevations of the Poestenkill are consistently -5 to -4 feet which make it marginally navigable for small craft during high tides. The impact of removal of the sunken barge and subsequent flow of sediments could significantly increase the depth of the Poestenkill Creek. The removal should be carefully analyzed for impact on the stability of shoreline structures.

The grade along the Poestenkill shoreline has been built up a few feet above the top of the sheet pilings in some areas, and this soil will need to be removed.

Topography Opportunities:

- Raise existing grades with imported fill adjacent buildings to within 6" of the existing floor elevation, to allow for ease in attaining accessibility to a new floor elevation, and attain any necessary encapsulation mitigation of hazardous soil conditions;
- If feasible and safe, remove the barge from the mouth of the Poestenkill, increasing the depth of the channel and creating docking opportunities for the UHRESC on the Poestenkill, and potential boat access or marinas to the north and east;
- Maintain the depth of the Hudson along the concrete bulkhead line for large research and passenger vessels;
- Maintain the grade separation along the existing concrete unit wall to attain a functional separation between Building H and a potential shoreline promenade.

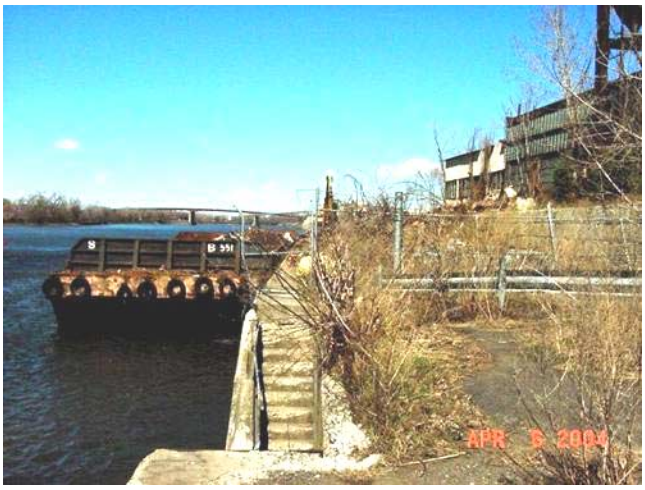


FIGURE 25: The existing bulkhead and depth of the river will permit large vessels to moor adjacent the UHRESC site.

Vegetation

Most of the existing site vegetation is emergent, or of a nuisance variety. A handful of ornamental species were planted at Building H facing Madison and the River, but all the other plant material on the site is a volunteer. Most have little horticultural appeal and though they provide shade, stabilize the soil and soften the visual industrial landscape, they will likely all need to be removed. The species found on the site offer clues to successful species to consider for future plantings including poplars, elder, locust, and birches. Of interest is the line of trees along the Poestenkill which may be helping stabilize the slope there. Some trees have begun growing near and into buildings and foundations and should be completely removed before they cause additional structural damage. Needed structural repair of sheet pilings will cause extreme disturbance to trees along Poestenkill, stressing or killing them. Trees along Madison Street near Building H will likely have to be removed for expansion of the building.

Landscape Planting Opportunities:

- Utilize street trees with habit of growth that is open and upright to maintain visual connections to the view down Madison Street and from the project site interior;
- Replace plants with similar species of better horticultural value;
- Consider plants that will thrive in existing heavy fill soils and droughty conditions;
- Place plants to shade new paved areas to reduce the urban heat island effect locally (LEED 7.1);
- Consider features of a rain garden for treatment of rainwater utilizing native plants typical at the Hudson River Estuary.

Solar Aspect

The solar orientation of site structures presents some development opportunities. The long axis of major buildings oriented north to south creating a favorable solar exposure for plantings in the central courtyard and along the riverfront. The river shoreline at the bulkhead will be in evening sun while the Poestenkill shore will be in nearly constant shade. Some minor spillover shading may reach the site from the Bruno building during a few weeks at the winter solstice.

Solar Aspect Opportunities:

- Create quiet shaded seating, resting areas along the likely shady portions of the Poestenkill corridor and trail;
- Expand the existing structures along the north-south axis consistent with the existing;
- Consider placement of street trees that will shade pavements and buildings (LEED 7.1) during summer months reducing the urban heat island.

Marine Environment

The Hudson River adjacent the site is a rich and active waterbody. The spring fishing for striped bass and other fish attracts crowds of boaters and land-based fishermen. Large boats, pleasure cruises and boaters headed to the State Canal system combine to create an active water-based “highway”. Water quality in the Hudson has improved immensely with the help of combined sewer overflow elimination programs and storm water pollution prevention efforts. These improvements will continue to “clear” the Hudson, and once the PCB dredging project is complete, another negative stigma attached to the Hudson will be eliminated.

All these efforts suggest that there will be ever increasing traffic on and use of the river adjacent to the site. Those uses are likely to become more diverse and could include new events, swimming and the ever popular watercraft.

Development of access to the shoreline and modifications to shoreline structures will involve regulatory reviews and permits from one or all of the NYS Department of Environmental Conservation,(NYSDEC) U.S. Army Corps of Engineers (ACOE) and the U.S. Fish and Wildlife Service. NYSDEC permits under Part 608 may be required for disturbance of protected streams, (Part 608.2) docks and moorings; (608.4) and excavation and placement of fill in navigable waters (608.5). Much of the project work in and around navigable waterways may be covered on Nationwide permits with the ACOE including: NWP3 Maintenance (Shoreline Repairs, Dredging); NWP7 Outfall Structures and Maintenance; NWP13 Bank Stabilization; NWP14 Linear Transportation Projects (Trail Bridge); NWP19 Minor Dredging Projects (under 25 CY); NWP33 Temporary Construction, Access, and Dewatering; NWP38 Clean up of Hazardous and Toxic Waste; and NWP43 Stormwater Management Facilities. Fisheries will object to piers and docks built over waterways. A strategy should be developed to demonstrate how important these facilities are to the project and that the benefits outweigh adverse impact.

Marine Environment Opportunities:

- Provide expanded access to the river and Poestenkill shoreline with piers and docks for use by fishermen and other boaters;
- Anticipate expanded use of the river and more diverse forms of river-based recreation such as crew and swimming;
- Anticipate regulatory review and propose mitigation for any perceived impacts as part of the project.

Shoreline Structure

The entire shoreline of the project site is improved. The concrete bulkhead stabilizes the river shoreline and the first 80 feet of Poestenkill. The remainder of the Poestenkill shoreline is retained with a steel sheet piling system. The concrete bulkhead is structurally sound and could benefit from cosmetic repairs of spalls near the water line. No change in the top elevation is necessary, though it may be desirable to extend a pier platform at the foot of Madison Street inland on top of the bulkhead to eliminate the existing abrupt grade change.

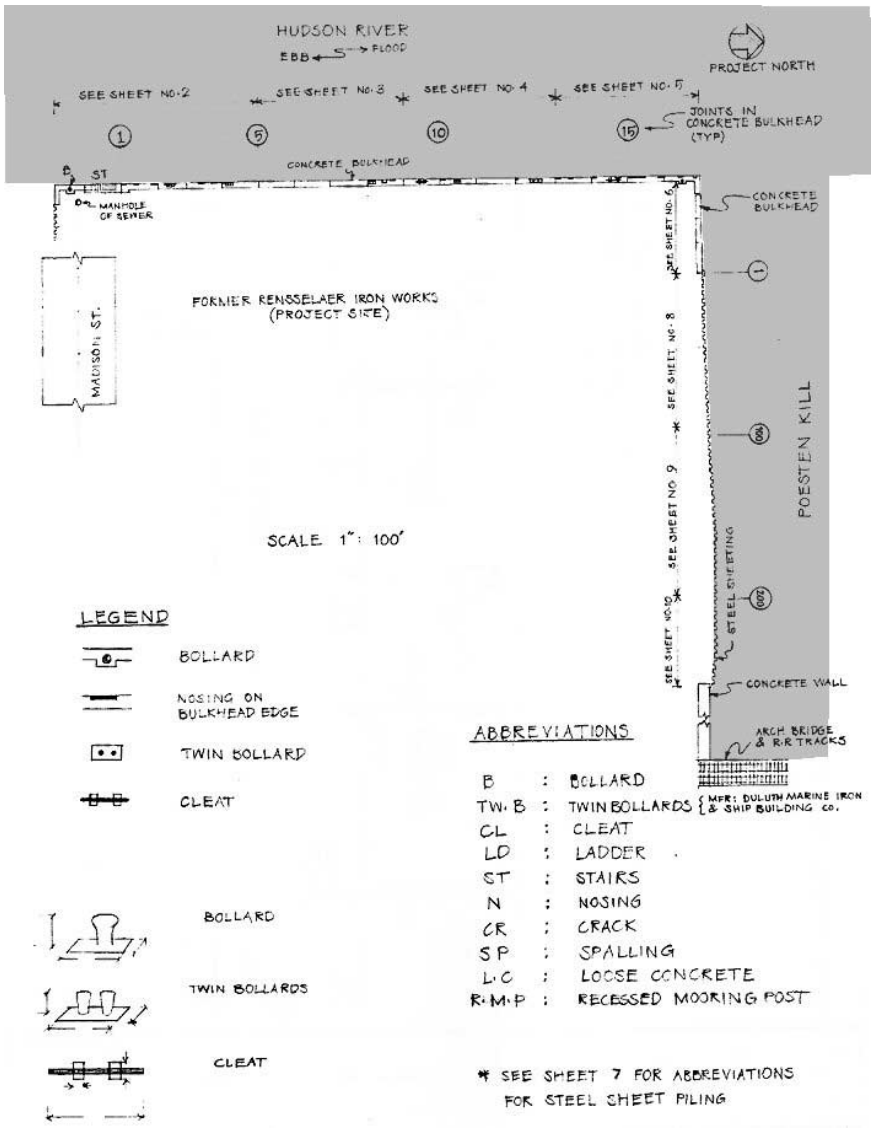


FIGURE 26: Sketch of the shoreline improvements prepared by Mueser Rutledge Engineers.

As discussed earlier, the sheet pilings along the Poestenkill will need to be repaired to re-establish deadman support to the top of the wall. It may be desirable to remove the upper portions of the sheet pilings, thus lowering the adjacent shoreline. The remaining grade change could be taken up further back from the shore with a slope or retaining walls.

Public safety along bulkheaded water bodies is always a concern, and the Canal Corporation has been at the forefront of innovation to address these safety concerns. Concerns for persons loosing their balance and falling into the water are addressed by providing ladders at regular intervals along canal bulkheads. At present, access ladders exist near the south end, middle and north end of the bulkhead. Ladders at those locations will need to be replaced with ladders that are wider, and have handrails that protrude above the top of the bulkhead as seen in the Waterford Canal Harbor. Some concrete removal will be necessary to accommodate these new ladders. The protrusions at the top are best separated from the ladder as they may need to be removed and straightened or replaced due to damage from flotsam.

Access ladders do not exist along the Poestenkill sheet pilings. Since the water of the Poestenkill is fairly shallow, dangers from falling are increased. Safety measures such as ladders and guardrails should be considered for the Poestenkill shoreline.

Shoreline Structure Opportunities:

- Consider site elements along the Poestenkill that will lower the existing shoreline grade, such as an amphitheater or lower level walk.
- Consider extending a timber pier platform inland over top of the bulkhead in the street right-of-way at the foot of Madison Street to eliminate the abrupt grade change near the shoreline.

Access

Madison Street is the only road linking the site to the City and there are no formal pedestrian links to the site. There is a grade crossing at the intersection of Madison Street and the CSX rail lines. Boat access is not feasible because the bulkhead and sheet pilings are too high for small craft, and there are no docks.

If the proposed industrial road is built as planned, a more direct link to downtown for motorists and pedestrians will be created, increasing, potential access to the site.

The CSX railroad right-of-way is the main barrier to the site, though there is little rail traffic crossing Madison. This right-of-way, historically, marked the boundary between the livable city and the working industrial city, thus most amenities for pedestrians, bicycles, or even cars ceased at the railroad.

Access Opportunities:

- Extend or create sidewalks, landscaping, and other street amenities to the river's edge on both sides of Madison Street, mitigating the perceived barrier of the railroad;
- Provide a variety of levels of docks and other landings to permit boaters to access the site from the water;
- Provide connectivity for trail systems through the site;
- Consider creation of a bridge over the Poestenkill near the Hudson River to establish public access along the shoreline to the north.

Parking

There are no formal parking areas either on or off-street around or in the site. There is sufficient right-of-way to create parallel or perpendicular parking on Madison Street, however, there are no other adjacent places to create parking. A significant amount of parking may need to be created on site, but public sentiment expressed at workshops favored limited utilization of the site for parking in order to maximize available greenspace. Architects for this project, Mesick Cohen Wilson Baker, have suggested that buildings C, D, and E are significantly deteriorated, do not contribute to the historic character and are thus expendable. The resulting space could become parking. The future industrial road as currently proposed will be too close to the facade of Building A for any more than parallel parking, and will not yield significant number of stalls. For these reasons, it will be necessary to look beyond the immediate project site for overflow parking to remote locations. The salt pile site, (Old Castle) opposite the Poestenkill from the UHRESC site is being considered for redevelopment and could include considerable parking or a multilevel parking garage. In the interim, several vacant areas exist including a large site opposite the railroad including some recently vacated rail yards and the Colehamer Fellows property. The river frontage of the Bruno machine works could provide shared parking. The former Troy Spring Works at First Street and Canal Street has a large parking lot never used at capacity which could become a private, paid parking lot. Another potential private lot could be built at Monroe and First Alley on lands owned by Cary Hull. Next door to that parcel is Rensselaer County Sewer District Pump Station which could be developed for parking off the alley.

Parking Opportunities:

- Consider creating parking on site that might be easily converted to greenspace as other nearby commercial developments begin to absorb parking demand;
- Consider incentives to encourage private parking lots, especially to meet demand during special events;
- Evaluate the potential to create perpendicular, or angled on street parking in city right-of-way adjacent to the project site.

Existing Site Architecture

The existing buildings represent an interesting mix of industrial architecture, configured on the site in a way that will permit creation of many attractive outdoor spaces. Though in varying states of deterioration, the benefits of preserving and adaptively reusing these buildings outweigh what can be gained by their demolition. Buildings A and H have the most value, as both in fair condition, and have open airy interiors capable of numerous kinds of uses. Building G is also in good condition and since it is relatively small can be rehabilitated in the near term to establish a public presence on the site. Artifacts such as smelting furnaces, flywheels, cranes and rails in the buildings create great opportunities to incorporate interpretation of the site's industrial history.

Architecture Opportunities:

- Preserve and adaptively reuse the existing buildings to the greatest extent feasible for use of the UHRESC and for other uses that will benefit the neighborhood while not competing with downtown.
- Building H appears to be the most suitable for accommodating the UHRESC facilities.
- Building G is in good condition and could be used to establish an office, visitor center, or other public use in an early project phase.
- Remove the built-up masonry on the west façade of Building G to re-establish the large windows offering clear panoramic views of the river from the interior.
- The central bay of Building A could be preserved as a large open space offering multiple simultaneous functions such as museum, recreation / fitness, farmers / craft market, and performing arts.
- The side wings of Building A are in less stable condition than the central nave and development for mixed commercial, retail and light industrial would provide a wider range of rehabilitation funding opportunities.
- Consider awning windows with remote operators in the clerestory replacement windows in Building A for cross ventilation.

- Flat roofs on Buildings C and D could be rebuilt to support rooftop dining or gardens.

- The high ceiling height in Building E would provide an opportunity for interior display of large artifacts, close to Building G could complement reuse of that building.

- Collapsed Building F is probably not feasible to preserve, the footprint would be an ideal location for a courtyard linking Buildings A, E, and G. the courtyard could be used for dining, sculpture, and interpretive displays.

- Artifacts of the site's industrial history exist throughout the site and building including smelting furnaces in Building A, cranes in Building A and Building H, molds and a large flywheel. These objects should be retained on site for eventual display on the site or in rehabbed buildings.

Rivers and Estuaries Satellite Center

Among the central organizing elements for the site are public shoreline access, trail interconnectivity and providing a location for the Upper Hudson Rivers and Estuaries Satellite Center. The location of the Satellite facility will be the primary consideration in evaluating existing site architecture and will most likely be the first adaptive reuse project undertaken.

The spatial requirements of the UHRESC are around 27,000 square feet. As a result, either an addition to an existing smaller structure is required or the facility could be completely housed in a large building. The need for access to the shoreline for movement of equipment and personnel between the center and the research vessel necessitates a location as close to the shoreline as possible.

The Rivers and Estuaries Center in Beacon in association with Rensselaer has developed a preliminary facility program which includes offices, classrooms, meeting rooms, research laboratories and storage. Site requirements include parking for around 100 cars, a bus turnaround, adjacent dock access for research vessels, and outdoor storage space. The preliminary program also includes 1,800

square feet of studio apartments which would be used by up to 6 visiting researchers; however, the apartment space will likely be sought in the adjacent residential areas rather than developed on the site. The Rivers and Estuaries Center has also expressed an interest in locating a fluvarium, an underwater room with a view, at the site. The feasibility of such a facility on this site is unknown at this time.

The facility will be designed to provide for tours of and opportunities to watch real time monitoring and researchers while they work. Building H provides a highly suitable location for the facility and adaptive reuse of that building would meet the preservation goals of the project, providing a prime feature of the industrial history of the site.

Specific Facility Requirements:

- Administrative Offices – offices and reception for the director, administrative assistant, outreach / education and research.
- General Offices – for visiting scientists, student researchers, and technical staff.
- Office Support Space – public lobby, meeting rooms, lunchroom, bathrooms, loading docks, storage and shipping / receiving.
- Teaching and Training – Wet bench laboratory, computer / control room (CAD, GPS, GIS, etc. ...), freshwaters simulation laboratory and visiting scientists / faculty laboratories.
- Specialized Laboratories – microscopy, media preparation, solvent storage, plant growth rooms, cold room, chemical waste, storage, repair / machine shop.
- Residential Requirements – 6 studio apartments for visiting faculty / researchers.
- Site Development Needs – parking for 108 cars; bus turnaround and drop-off; truck service; outdoor storage yard; direct access to docks; docking for a large research vessel; docking for small craft; boat

storage, storage (buoys, anchors, lines, scuba gear).and miscellaneous outdoor storage space.

Optional Components:

- Lift and Catwalk – an elevated catwalk making a direct connection from the Satellite Center Building, crossing the pedestrian promenade to a dock mounted lift, allowing for easy transfer of equipment and supplies between the facility and docked research vessel.

- Outdoor Patio – an exterior, private dining and meeting space with views of the river.

- Fluvarium – a building that provides a window view of life in a body of water. Such a structure at the Upper Hudson Satellite could provide such a view of life in the Hudson and Poestenkill. The fluvarium at this location would be only the second such facility in North America.

Upper Hudson Rivers and Estuaries Satellite Center Opportunities:

- Place the UHRESC facility in Building H or a new building adjacent the Hudson shoreline.

- If Building H is used, expand the building on a north / south axis. Expand Building H to the southern property line to provide a street relationship consistent with Building A.

- Rehabilitation of Building H for the UHRESC facility should include exploiting the architectural character of the tall central space with its multiple stepped clerestories and natural lighting for use as the main public lobby.

- Utilize the elevated grade along Building H, facing the Hudson, for facilities dedicated to the UHRESC including an outdoor patio, outdoor storage and an access bridge / catwalk to a lift.

- Consider locating the fluvarium at the confluence of the river and creek, or a site nearby that requires contaminated soil to be removed. If feasible, provide views of the Hudson and of the Poestenkill from the fluvarium.

- Provide examples of innovative pollution prevention adjacent the UHRESC for use as interpretation opportunities.
- Provide a covered public gathering area adjacent the UHRESC.
- Arrange facility spaces in Building H so as to preserve the existing open clerestory as corridor or lobby space.

Opportunities Summary

Perhaps the most significant opportunity presented by the Upper Hudson Rivers and Estuaries Satellite Center is the international scope of the estuarine research carried out there. The center is likely to bring researchers from other nations to the city. Data monitored and gathered at the UHRESC from local projects such as the nearby EPA's Hudson River dredging could create a unique center of data for information about reclaiming estuarine environments from pollution. The City should utilize this potential for an international focus on the Rivers and Estuaries Center to its greatest advantage. The City must also carefully consider the other public and private uses of the site in light of this potential international exposure as well as how to draw these visitors downtown.

Several common and related opportunities emerged for the planning of facilities at the Upper Hudson Rivers and Estuaries Satellite Center project. Among these common opportunities are pre and post development environmental remediation which includes mitigation of soil contamination, asbestos, storm water pollution prevention, urban heat island mitigation and visual impact mitigation. Careful coordination of the final design with pre-development mitigation requirements could result in development cost savings, such as placement of underground facilities where contaminated soils must be removed. In addition, the Rivers and Estuaries Center has expressed an interest in LEED certification for the facility and several of the suggested mitigations that will provide LEED certification points.

Preservation of the site architecture is critical to preserving the legacy of the steel industry in South Troy. This can only be feasible with an infusion of carefully targeted preservation funding for Buildings A, G, and H. Adaptive re-use of these structures should be a priority in any development plans. Building A, in particular, has great potential for mixed use development that will provide private investment opportunities in the single story east and west wings, while maintaining the open central bay for public uses.

Visual connections and easy walking / biking access to and around the riverfront and Poestenkill shoreline is another highly regarded opportunity. Enhancement

of views and visual connections to the river will foster a reconnection of the neighborhood to the river shoreline. Establishment of an attractive, walkable promenade along both shorelines (Hudson and Poestenkill) will bring walkers, bikers and likely commuters to the site.

FIGURE 27: The UHRESC project will change the face of the South Troy Waterfront significantly. This view will include a pedestrian promenade, pier on the river and bridge over the Poestenkill.

Chapter 4

Public Participation Summary

Public Participation was a key component of the UHRESC project. Informing the public and canvassing opinions from the public was critical to early development of the project. Local needs and desires formed the basis for conceptual designs for the entire project.

The City of Troy and its project partners, Rensselaer, the Darin Freshwater Institute, and the Rivers and Estuaries Center, recognized the importance of fully informing the project constituents about the project and presenting those constituents with opportunities to participate in the strategic planning process. As a result, an extensive participation plan for the project included the establishment of a citizen's advisory committee to work with the consultant team and technical committee. A series of public information meetings and public design workshops were held over the course of the project. Those sessions were well attended and highly participatory. A very diverse cross section of the community was represented at each session. A list of attendees is included in Appendix J, Public Participation Summaries and Public Comments.

FIGURE 28: Workshops held at the Polish American Club were lively and well attended.

Public Information Meeting, January 19, 2005, Polish American Club.

This initial meeting provided the project team with an opportunity to introduce the project to the public. During the meeting, the public was informed about the scope of the strategic plan, project schedules, project primary and secondary study area limits, a brief site history, and existing conditions at the Scolite Site. The primary objectives in the development of the plan were presented including housing the UHRESC, creating public open space, creating access to the shorelines, connectivity for trails through the study areas, boat landings, and other uses to be determined in future workshops. The Rivers and Estuaries Center and Darin Freshwater Institute made a detailed presentation to introduce the type of facility anticipated for Troy as well as the types of research to be conducted at the UHRESC.

Related projects including brownfields, the South Troy Working Waterfront Plan and Greenway trails were briefly discussed, as they pertain to the UHRESC. A public workshop schedule was presented and the meeting closed with public questions and answers.

Opportunities Workshop February 22, 2005, Polish American Club.

The second public meeting was a public participation workshop intended to generate ideas about the development of the project. A brief review of the project introduction presented at the last workshop was followed by discussions in four separate groups and ended with presentations by each of those groups.

Participants in all four groups felt strongly that the future development of the site should include: strong links to site and local history including displays and interpretive exhibits, wide ranging public access along both Hudson and Poestenkill shorelines including large pleasure boats, small craft, canoes, kayaks,

rowing shells and shore fishing; indoor and outdoor public recreation such as basketball, soccer, tennis, fitness center, fitness trail, indoor rock gym, etc. ...; small specialty retail shops and cafes; and light industrial water-dependent uses related to the site history, providing interpretive.

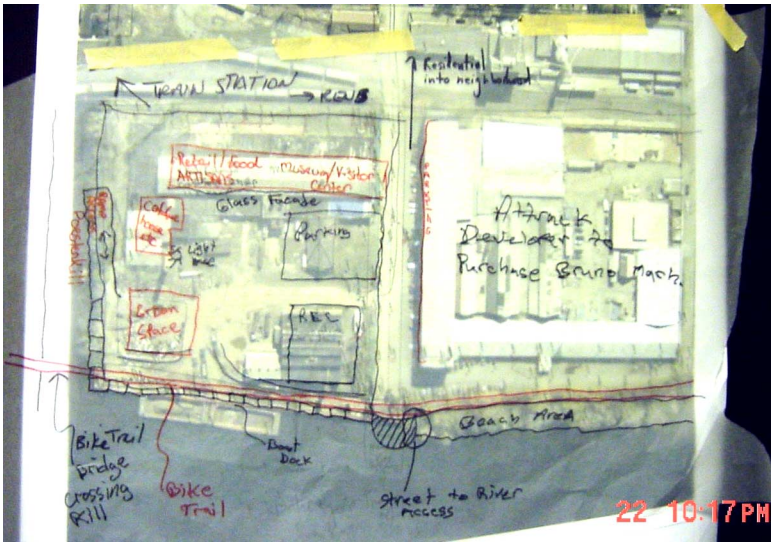


FIGURE 29: Site sketch prepared by one of the discussion groups participating in the second public workshop.

Several innovative and unique proposals were presented by the discussion groups. Recognizing the site might need a strong anchor or "draw" besides the UHRESC, a group proposed relocating Hoffman's Playland to the site. In response to the need to address a structural problem along the Poestenkill sheet pilings, an amphitheater and a lower level walkway were proposed. One group proposed a unique "Green" concept including indoor and outdoor "estuaries botanical gardens", community gardens, green buildings, housing, youth and senior centers. Common among all four groups was the adaptive reuse of Building H for the UHRESC facility. Also a common theme was adaptive reuse of Building A for a mixture of public and private use that would keep the main high ceiling center section open for a combined museum, public recreation, public market and performance space.

Program Themes Developed from Workshop 2:

1. History, Interpretation and Tourism

- **Museums and Interpretive Opportunities**
  - National Bell Museum
  - Science of the Rivers and Estuaries Center
  - Steel Rails – Railroad History
  - The Monitor – Civil War History
  - Bus and Boat Tour Accommodations

2. Public Recreation and Trails

- **River Access**
  - Boating, Launching, Docks, Crew
  - Recreational Access, Fishing, Swimming, Views
- **Trail Connections**
  - **South Troy Bikeway/Walkway Trail**
  - **Poestenkill Greenway Corridor**
  - **Bridge and Link to Downtown**
- **Indoor Recreation**
  - **Skating, Skateboarding, Rock Climbing**
  - **Fitness, Spa**
  - **Courts**
- **Other**
  - **Playground, Carousel, Picnic Areas**

3. Performing Arts and Special Events

- **Indoor Performance Space**
- **Outdoor Amphitheater, Learning Space**
- **Indoor and Outdoor Festivals and Shows**
    - Crafters
    - Flea Markets
    - Farmer's Markets
    - Ethnic Fesitvals
- **Fishing Events**
- **Rowing Events**
- **Indoor Sports Tournaments**

4. Community Service

- **Community Gardens and CDCG Offices**
- **Botanical Gardens, Estuary Arboretum**
- **Community Center**
- **Public Library Branch**

5. Neighborhood Commercial

- **Restaurant, Café**
- **Banquet Space, Receptions**
- **Specialty Retail, Specialty Groceries, Coop**
- **Public Market**

6. Light Industrial

- **Waterfront Related Industry**
- **Boat Building and Repair**
    - Marina Supply and Manufacturing
    - Historic Machinery Refurbishment
- **Light Manufacturing and Assembly**
    - Woodworking
    - Specialty Fabrication
    - Historic Related

7. Accessory and Transportation Related

- **Parking – On-site and Off-site**
- **Transportation Connections**
    - Water Taxi
    - Tour Buses
    - Downtown Trolley
    - Auto-tours
- **Linkages**
    - Burden Museum/Building
    - Downtown
    - Trails, Scenic Areas
- **Service Needs**
    - Delivery Truck Access
    - Waste Removal

8. Other Public and Private Uses

- **Adaptive Re-use of Buildings**
- **Respond to the Community's Needs**
- **Complement Downtown Commerce**
- **Fit into a Regional Context**
- **Compatible with the Goals of the South Troy Working Waterfront Revitalization Plan**
- **Become a Catalyst for Revitalization Efforts in South Troy**
- **Think Globally**

FIGURE 30: Workshop 2 participants discuss issues important to consider in the planning for the UHRESC.

Conceptual Design Workshop, March 22, 2005, Polish American Club.

The third workshop was intended to build on the ideas from the February workshop and develop concept plans for the project. A brief introduction to the project was a review of the earlier workshops for newcomers. Four groups assembled to develop concept plans that would accommodate the major fixed program elements of the UHRESC, shoreline access / public recreation, and trail connectivity. One group discussed suitable interim uses. The interim group needed to consider uses that could establish the site as a public recreational venue, stabilize the buildings, provide revenue to the City, and establish a precedent for long term uses of the site. Three other groups developed concepts for the permanent development of the site based on a mixture of the seven themes that developed in Workshop 2, built around a "draw" or anchoring element.

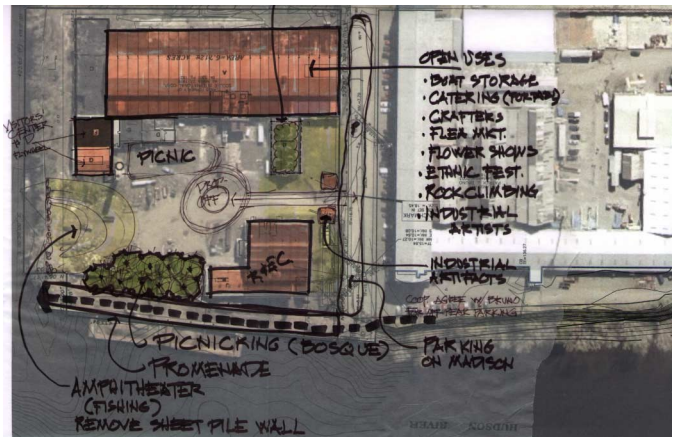


FIGURE 31: The sketch prepared by a group discussing 'Interim Uses' for the site.

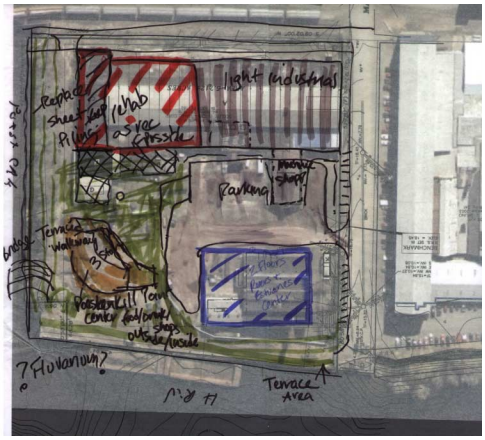


FIGURE 32: Light Industrial concept plan included a high-rise residential building.

Workshop 3 provided some interesting innovations as well as some common ideas about how the site should be organized. Several common approaches to the project emerged, regardless of the objectives of each group.

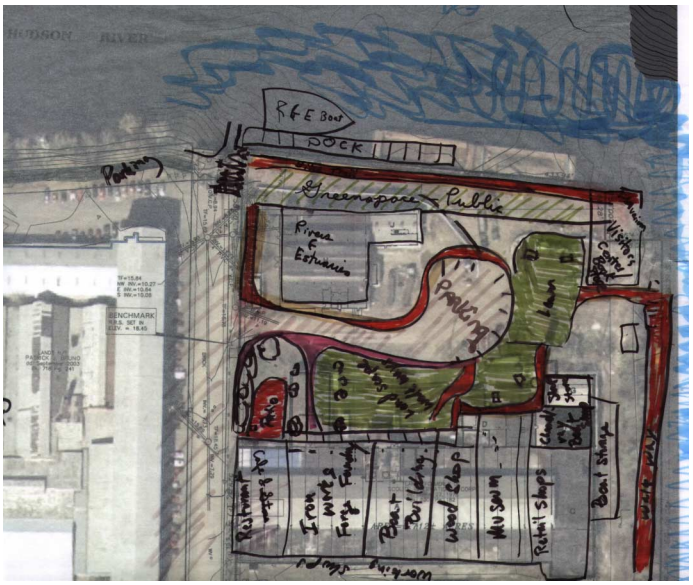


FIGURE 33: A concept plan for a museum use of Building A.

FIGURE 34: Concept plan developed around a community center use of Building A.

Common Workshop Concept Plan Approaches:

- The UHRESC was located in Building H and J.
- Parking was situated between Building A and H and included a bus turnaround / drop-off.
- A large lawn with picnic tables was generally shown near the Poestenkill / Hudson Confluence, exception of a plan illustrating a high-rise mixed-use, residential building.
- Building B – lost in the January '05 fire was recalled with a patio by one group, another proposed rebuilding it for an unspecified function.
- The Hudson River shoreline was designated as public open space with some form of promenade / trail on all the plans. While the Poestenkill shoreline was shown as public, different functions were proposed in each plan.

Final Concept Plan Presentation, August 3, 2005, City Council Chambers, Troy City Hall.

The final public workshop was a culmination of refining ideas generated during the early workshops by the project team into feasible alternatives for development.

Chapter 5

Conceptual Development Plans

Several mixed use development scenarios can be created for the UHRESC project. The alternatives presented share common elements while providing some unique suggestions. These alternatives illustrate how a palette of compatible uses can emerge from different groupings of land uses.

The concept plans developed during the public workshops formed the basis for more refined alternative concept plans. In the development of the alternatives, the fixed program elements were balanced with a variety of other compatible site and building uses. Alternatives were conceived as illustrative of varying degrees of intensity and demonstrating the interrelationships of different compatible uses of the site and buildings. The intent in presenting these alternatives is to model the final form of different mixes of potential uses with fixed elements.

Fixed Program Elements

Throughout the development of the project several elements were presented as fixed program elements. Those fixed elements were to be considered part of the program, but were not targeted for a particular part of the site or building. Interestingly, as concept plans developed in the workshops, many of the fixed program elements were commonly assigned to the same location in development schemes presented by groups charged with divergent development scenarios. A discussion of how each of the fixed program elements can be accommodated in the final site design is presented below.

Based on the facility requirements compiled by the Rivers and Estuaries Center and Rensselaer (RPI), approximately 27,000 square feet of floor area will be required; access to a dock on the Hudson River; a service entrance with a loading dock adjacent to Madison Street; a covered outdoor storage area; an secured outdoor storage area; a public entrance convenient to parking for cars and buses; and convenient access to a future fluvarium.

A brief analysis of suitable location options was conducted by Rensselaer staff which included:

1. The adaptive reuse of Building H,
2. Replacement of Building H with a new facility;
3. A new building at the northwest site corner;
4. Use of a portion of Building A with a replacement Building B.

Since Option 2 is contrary to the adaptive building reuse goals of the project and Option 3 is contrary to the public access goals of the project, they were eliminated. Option 4 would dedicate a significant portion of Building A to the Satellite Center resulting in the need to fill two separate vacant large buildings and an undesirable separation of the Center from the river. It is not clear that the city would benefit from Option 4.

As a result, the obvious choice for the UHRESC facility is Option 1, to adaptively reuse and expand Building H. This location will provide for convenient access to a dock on the Hudson River, convenient service access from Madison Street, and will meet the historic preservation project goals.

To accommodate convenient access to docking for a research vessel without conflicting with public access along the shoreline, a service bridge at a higher elevation between Building H and a lift on the river will be required. To safely avoid the 100 year flood elevation of 25.2' a finished floor elevation of 26.0' is suggested. The service bridge would thus provide more than adequate vertical separation from the public promenade along the river shore which will be at elevation 13.4'. The research vessel dock could be connected or separated from floating docks for small boats.

The architecture of the new center should preserve the open and airy interior of Building H, and any additions should carefully preserve the existing building as the major mass and form. Public access should be accommodated to the

UHRESC interior so that the public can view research and laboratory activities. Public access might necessitate larger than normal corridors and oversized vestibule spaces.

The new facility could be a prominent structure when viewed from boats on the Hudson River and when viewed by drivers along the opposite shore on Interstate 787. Visibility of the UHRESC from those locations will provide an opportunity to promote the project with a visually appealing architecture that interprets of the nature of the project.

Public Waterfront Access

The heavy industrial nature of the waterfront and the barrier posed by the railroad right-of-way that parallels the river shoreline has made improved access to the Hudson River a goal that has been difficult for Troy to attain. This project presents an opportunity to make not just an improvement, but to create a unique public attraction on the river with multiple kinds of access to the river, thus setting an important positive precedent.

The riverfront trail will provide some access to the river shoreline, but that access will not provide amenities for fisherman, or those seeking passive recreation such as picnicking, enjoying views, boating, and swimming. The easy access from ample parking and introduction of amenities like a pier, a promenade with benches, lights, trash receptacles and landscaping is likely to draw large numbers to the shoreline and may change the public perception of the river.

Establishment of a major public open space at the intersection of two major public greenspace corridors along the Hudson and Poestenkill suggests a significant node of trail-related activity on the site. Alternative modes of transportation could add a variety of ways to better access the UHRESC site. Construction of a range of docking facilities will result in access to the site from small private boats, large research vessels and large passenger cruisers. A boat launch for car top boats or rowing shell could be incorporated into the Poestenkill Creek shoreline or along the Hudson River south of Madison Street.

The existing rail corridor and the South Troy Industrial Road provide other intriguing opportunities for alternative modes of access to the site. All these modes contribute to great diversity of ways to get to the site and to the waterfront, making the UHRESC site an ideal location for their convergence and underlining the need to provide public amenities to complement this waterfront access.

Trail System Interconnectivity

The opportunity to provide trail connectivity through the site is a critical part of the establishment of public access the waterfront. Not only can the trail corridors be established adjacent the Hudson River and Poestenkill Creek, but connections from the UHRESC site north and east can establish important public recreation and greenspace precedents for adjacent parcels. While the trails will be shared use and accommodate passive recreation amenities such as benches and lighting, they should be accommodated along the respective shorelines of the Hudson River and Poestenkill Creek throughout the UHRESC site. Ample space exists to accommodate the trails in corridors 15' wide along the shorelines and accommodate an adjacent 20-25' wide 'passive' pedestrian promenade. The existing topography makes it possible for grade changes to help separate the trail corridors from private or semi-private site developments with 4 to 6 foot differences in elevation.

Since the Riverfront Walkway/Bikeway will eventually connect to Downtown Troy to the North, and the Corning Preserve Trail via the Menands Bridge, the trail will eventually be a major link in the regional trail system. This will be mutually beneficial as trail traffic through the site will patronize commercial developments at the UHRESC.

The Poestenkill Corridor will provide similar mutual benefits. The UHRESC site will serve as the terminus of that greenway corridor. A connection to the Poestenkill Falls and Prospect Park will provide a unique nature experience for side trips for Riverfront Walkway/Bikeway users. Trailhead facilities for the Poestenkill Greenway Trail should be incorporated into plans for the UHRESC site including trail mapping, interpretive information and bike racks.

Since the project site will be a node of major importance for both trails, as a trailhead for the Poestenkill Greenway Corridor and as a resting point for the Riverfront Walkway/Bikeway, significant trail facilities should be incorporated including a water fountain, bike racks, trail information and other amenities, establishing the site as a major stopping point on the regional trail system.

Adaptive Re-Use of Buildings A, G, and H

A significant contribution to American industry, warfare, commerce and culture was made by the industries that once flourished on the South Troy waterfront. Interpretation and celebration of that rich history is an important way to link the UHRESC project with the nationally significant history that was, in large part,

due to South Troy's Steel Industry. Critical to that interpretation and celebration is the preservation of the historic architecture in which much of that history has taken place.

Though Building B, one of the most significant and important buildings has been lost, the remaining buildings provide critical links to the past that cannot be recreated with a modern replacement. Of the remaining structures, Buildings A, G and H are the most important in terms of perservation. They represent a variety of architectural styles and construction methods and can be adaptively reused for a number of desired functions. The central bay of Building A should be preserved in its present form. The shorter side bays of Building A provide a good opportunity to develop small commercial or light industrial leaseable space; however some forms of waterfront dependent industrial uses might require and be allowed to use the open central nave. The open airy central bay of Building H should also be preserved to the extent feasible. Another critical architectural element worth preserving is the 60 foot tall smokestack near Building G. The masonry structure is a significant vertical element and identifiable from a distance in all directions. Building G is a small structure with an attractive brick masonry façade and slate shingle roof. Full length windows have been partially 'blocked – up' on the Hudson River facing façade with concrete masonry units. Building F is attached to 'G', but is probably beyond repair. Demolition of that building would set Building G attractively apart from the rest of the main complex of structures attached to Building A.

The remaining structures, Buildings C, D and E, do not contribute significantly enough to the major structures to warrant preservation should stabilization and repair prove too costly. Building F is significantly damaged including a collapsed roof and walls and is beyond repair. Buildings J and K are not architecturally important and should be demolished and removed. While these buildings do not contribute historically and are in need of significant repair, they could be retained should they serve some function in a development plan.

Other Program Elements

The following program elements are not considered 'fixed', but would contribute significantly to the UHRESC project and be compatible with the fixed elements , the city zoning ordinance and the neighborhood. They should be considered for the final development with the understanding that they may not be compatible in all the potential development scenarios.

Museums, Heritage and History Interpretive Facilities

Several suggested historic and heritage related themes were discussed during workshops and other events. Local history is well documented and the advisory committee included Thomas P. Carroll, curator of the Burden Building Museum. Among the significant history worth recalling on the site are manufacturing of brass bells; steel rails; and plates and rivets for the Monitor. The Hudson River as major commercial transportation corridor, natural resource and scenic resource is another potential theme that would complement interpretation of the science of the UHRESC. All these interpretations can be accommodated within the development of the site.

Interpretive kiosks should be located at the likely pedestrian nodes of the site with smaller pedestal information displayed at other locations. In addition, large pieces of equipment or other large artifacts should be displayed outdoors and incorporated into designs for plaza spaces and planting beds. Several development scenarios for Building A suggest the central nave remain open and public presenting an opportunity to incorporate large scale equipment, artifacts, sculptural, murals, or other historical, heritage interpretive elements.

International interest in brass bells manufactured in Troy prompted a suggestion to create a National Bell Museum as part of the project. A display of brass bells manufactured in Troy could be incorporated throughout the central nave with interpretive information below on the floor. Alternatively, a centrally located display could be created in an open 'concourse' in the middle portion of the building.

Another large-scale use of Building A that was suggested would dedicate a significant part of the building for the construction of a full scale reproduction of the historic civil war vessel Monitor. Since this work will eventually be completed, it would complement a long term commercial development of Building A, providing additional leaseable space when the vessel is completed and removed at a time when more space might be needed.

The potential to house large scale historic interpretive exhibits indicates a need to accommodate tourists. Tour buses already operate in Troy, visiting a number of significant sites. The site development should include facilities for buses including parking, drop-off areas, rest rooms, and bus shelters.

Public Recreation

Several recreational activities will likely be accommodated in the project as 'fixed program elements' discussed above. Beyond the recreational access to the water for boating, crew, fishing, swimming, and use of the trails; other forms of indoor and outdoor recreation can be part of the UHRESC project.

Creation of a picnic grove at the northwest corner of the site was a common element of concept plans created during the public workshops. This picnic grove would complement the major trail node and provide a setting for some of the trail related amenities. Envisioned as a grassy knoll, shaded with mature deciduous trees, the picnic grove would serve as a spot for picnic lunches for school groups, tour groups, trail users, or local residents. Trees planted at the picnic grove should possess an upright habit of growth, open canopy and have a minimum branch height that does not completely screen views of the river. Picnic tables and barbeque pedestals should be considered if a large area can be dedicated as the grove.

Performing Arts and Special Events

Concept plans developed during the public workshops featured an outdoor amphitheater introducing an idea that could prove a important part of the final site development. Initially, the amphitheater was featured in plans as a way to mitigate some of the failed sheet piling along the Poestenkill Creek without consideration of how it might fit into the overall development. Further consideration of the potential compatibility with the UHRESC and possible commercial development of Building A leads to the conclusion that an amphitheater would be a great potential asset.

An amphitheater could serve as an outdoor venue, classroom and staging area. Orienting the amphitheater facing the Hudson River creates a potential floating stage setup and very desirable views of the river and shoreline.

Besides the amphitheater, a large plaza could be created along the western façade of Building A. Built as a pedestrian street, this space could be used for outdoor shows, sales, markets and performances.

Indoor spaces in Buildings A and H are well suited for a variety of performances, shows, sales, markets, receptions and sporting events. Future development of

Building A should include dedication of at least a portion of the central nave to these types of uses.

The site venues, parking, easy access and shoreline improvements will create an excellent setting for outdoor special events such as fishing tournaments and rowing competitions. Fanciful events might be based in part at the UHRESC such as a model ironclad regatta. Events that call attention to environmental issues and history would also fit well with the project.

Community Services

Several potential community service functions might be accommodated in the final project. Among the suggestions made during public workshops was creation of community garden plots, establishment of an estuary conservatory, an all-ages community center and a library branch.

The Capital District Community Garden expressed interest in locating an office at the UHRESC site. The establishment of community gardens as part of the project could be considered in several locations including in a composition of garden spaces around Building G, in the space formerly occupied by Building B, or as part of a rain garden near the parking areas. The CDCG would become the initial lessee of space in Building A or G.

Neighborhood Commercial

Local residents expressed interest throughout the workshops for commercial use of some of the buildings at the UHRESC that would fill a variety of local service voids. Residents recognized that these uses should not compete with downtown while filling a unique need in South Troy. Among the suggested uses for the UHRESC were the establishment of a small café, specialty retail, coop grocery, ethnic grocery, reception/banquet space and a permanent year-round market.

These uses could all easily be accommodated in either Building A or Building H, though the configuration of Building A would be better suited for the creation of space for commercial uses. One concept plan developed during the workshops suggested the creation of a restaurant/café in Building C, utilizing this roof as a dining terrace. This would establish an attractive urban street setting along the Poestenkill Corridor, perhaps becoming a catalyst for replication along Canal Street and the Poestenkill.

Space which could be used for receptions and banquets would follow a national trend whereby industrial building adaptive reuse projects become a setting for celebration of public and private special occasions. Previously suggested configurations of Building A in which the central nave of the building is preserved as open public museum space would create a suitable setting. Should the city retain ownership, this use could provide an excellent source of revenue.

Retail uses for the facility included small shops oriented towards ethnic groceries, specialty retail, crafter's retail, historic items retail, and gift stores tailored to tourists.

Public market uses on the UHRESC site would be unlimited, indoor and outdoor hosting everything from flea markets to exclusive art show/sales. As discussed above, this use would be compatible with establishment of permanent commercial leases along the lower wings of Building A and retaining an open public central nave that could be used for such events. Creation of urban street and plaza spaces along the waterfronts, and facades of Building A capable of outdoor markets should be anticipated, allowing the site to function as an integral part of these public markets.

Parking demands on the site for neighborhood commercial use of the UHRESC site will be higher than other uses. Options for future expansion of site parking should considered, including satellite parking areas near the UHRESC site, a parking garage, shuttle service, and inter-modal transportation access the site. A detailed analysis of parking requirements is presented in a discussion of zoning later in this chapter.

Neighborhood commercial use of the site will require extensive service access to buildings. This access could be accommodated in plaza spaces along the long facades of buildings, used exclusively for service during off-hours. Alternatively service could be centralized at the ends of the building.

A marketing analysis of potential kinds of neighborhood commercial uses should be undertaken to determine community needs; identify opportunities that are lacking; identify historic commercial uses that are presently lacking; suggest space, service, and parking needs for potential uses; identify compatible light industrial uses permissible under the current zoning; and suggest how to configure Building A optimally for marketability.

Light Industrial

A stated goal of the South Troy Working Waterfront Revitalization Plan is to relocate heavy industry to the southern most zone of the South Troy Waterfront, south of Main Street and the Public Safety Building. That goal did not imply the banishment of all industrial use from the Central and Northern Zones of the South Troy Waterfront, but suggested that the facilities should be smaller, require less intense shipping and receiving, and be capable of mixed use of sites.

The UHRESC site is in the Central Zone of the South Troy Waterfront and under this designation is in a Waterfront Commercial District (WCD) which permits light industrial uses. Troy's zoning defines Light Industrial as:

> "…A facility that designs, assembles, or processes a product from previously prepared materials, of finished products or parts, for wholesale or retail sale and operates its uses within a building or buildings. The industry does not produce high volumes of polluting wastes and is compatible with other uses of the district."5

Several specific kinds of waterfront related industrial activities are suggested as a result of public discussions including boat building and repair; marina supply and marine supply manufacture; historic machinery refurbishment; manufacture of historic replacement parts; woodworking, metallurgy, and other historical craft industrial; and specialty fabrications.

Light industrial uses should be encouraged that will provide opportunities for observation and interpretation by the public of work in progress. Utilization of the existing buildings will vary according to the requirements of the respective industrial use, but should, where possible, maintain the open character of the central nave of Building A and open center of Building H.

Parking demand in connection with industrial use of buildings will be less intense than other uses, making it likely that demand can be accommodated on-site and on-street adjacent the UHRESC. Service could most likely be centralized at the building ends. One scenario would create a centralized, possibly covered service court in Building C with access from the new Industrial Road. A shared access and parking court could be utilized to gain service access along Madison Street.

[5] City of Troy PC/Code Book for Windows, Chapter 285, Zoning, article 4.202, Definitions, p.2 Amended 6/04.

Service access along the west façade of Building A could also be anticipated in the creation of parking and pedestrian space.

Parking and Transportation Related

Parking will be a significant factor for the development of the UHRESC site. The public desire to minimize use of the site for onsite parking conflicts with several desired uses of the site that require large numbers of available parking spaces. It is likely that off-site parking facilities will be needed and several opportunities exist for such facilities, as discussed in the Opportunities Chapter. In addition, the city should consider dispersing UHRESC parking demand among other anticipated development projects with an eye towards coordinating demands and shared uses.

As use of the site's public waterfront facilities increases, it is likely the need for on-street parking will also increase. The city should consider formalizing additional on-street parking utilizing innovations such as perpendicular, angled back-in and standard parallel parking in the nearby blocks as road repair projects are undertaken in the nearby blocks of Canal Street, Madison Street, Monroe Street, First Street, Second Street, and the associated Alleys. While the impact of parallel parking might be minimal, other configurations could increase the available local parking significantly. Creating maximum on-street parking alone will not prevent potential parking grid-lock near the project site. Therefore, a pleasant walking experience from remote parking to the UHRESC site must be created as well. Potential sites for remote parking include existing and underutilized industrial and commercial lots within a few blocks of the UHRESC site. Several vacant sites could be used to create public parking lots including the vacant lands opposite the UHRESC site. More remote locations including large public lots and garages could be utilized by employing a trolley or water jitney connection. A parking garage on site would alleviate a significant parking need without consuming potential landscape or plaza space.

Buses, including CDTA and Touring Lines should be accommodated at the site including shelters, curb-side drop off areas and bus parking stalls. The new Industrial Access Road should be considered as an additional part of CDTA routes.

Multimodal access to the site will be the critical factor in limiting the amount of on-site parking. The site is ideally suited for connections to several levels of water-borne transportation from private small craft through large research vessels to large passenger ferries and excursion boats. Water-taxi service has been a much

discussed option that may be easily accommodated by dedicating portions of floating docks for their use or creating a dedicated landing on the Poestenkill.

Besides water-taxis, other innovative surface transportation means could serve the UHRESC site including rubber-tired trolley service, light rail and bicycle. Albany's 'Aquaducks' could provide an interesting land and water based transportation connection. A boat launch ramp somewhere nearby would be required, which could probably be incorporated into the Poestenkill Creek shoreline improvements, or the Aquaduck could dock at the bulkhead.

Another transportation innovation that could easily be accommodated is Pedi-cabs. Service in Troy has been proposed by the operating enterprise in Saratoga Springs. Open plaza areas and dedicated parking areas could be used to accommodate pedi-cab service at the UHRESC. In a related light industrial use scenario pedi-cabs could be assembled, repaired and stored in a facility created on site.

Additional Considerations

Residential use of the site was suggested in two forms, including a high-rise apartment building and senior apartments. The present zoning, as amended in June 2004 does not permit multi-family dwellings in the WCD (Waterfront Central District) from the Poestenkill to Main Street and in the WTD (Waterfront Trade District) south of Main Street. Residential development is permitted north of the Poestenkill, and since the UHRESC site is adjacent to this boundary, residential uses on the site might be considered. However, residential development tends to be incompatible with public use of shorelines, a highly valued element of the UHRESC development strategy. Large scale residential development would utilize a substantial portion of the site for structures, access and parking, leaving limited if any public open space.

Several office and service uses are permitted in the Waterfront Commercial District including professional offices, banks, and laundromats, discussed in more detail below in Zoning and Planning. Specifically prohibited in the WCD are Hotels/Inns and indoor/outdoor storage as principal uses.

Compatibility of Program Elements

A compatibility matrix illustrating the relationship of particular uses to the principal site elements was created and is included in Appendix L. This chart can be used to help gain an understanding of how development scenarios can be created from sets of compatible uses. Compatibility is ranked through a color

coding system as not applicable, incompatible, somewhat compatible, or highly compatible in the colors white, red, yellow and green respectively.

Feasibility and Constructability Issues

There are few feasibility issues with the proposed UHRESC program elements. The fluvarium is the most significant unknown, with a preferred location underground at the confluence of the Hudson River and the Poestenkill Creek. That location would place it behind the massive concrete bulkhead at that location and necessitate penetration of the concrete structure with window wells to provide views of the adjacent underwater environments.

Adaptive reuse of Building C may pose some constructability challenges. The roof will need to be completely replaced with a retrofitted support structure and roof system. Since this will be a new design, it would be possible to design the structural members to support a dining terrace and roof top garden.

Zoning and Planning

The City of Troy began to implement recommendations of the South Troy Working Waterfront Revitalization Plan soon after the adoption of the plan by the City Council. In June 2004, an amendment to the City's Zoning was adopted implementing recommendations of the STWWRP to promote a transformation of portions of the South Troy Waterfront.

4.202 Waterfront Districts

2. Waterfront Commercial District (WCD) –The purpose of this district is to encourage the redevelopment of South Troy's central waterfront for a mixture of commercial and industrial uses that will contribute to the City's tax base, create jobs and are suited for integration with the natural environment of the Hudson River, the adjacent residential neighborhood and city bicycle/ pedestrian trail systems. This shall be accomplished by providing zoning classification suitable for application to that portion of the waterfront where uses including recreation, greenspace, research and development activities and offices, light industry activity and limited retail will be permitted. Permitted retail uses will be limited to those uses that will not compete with downtown retail activity and will provide goods and services needed by the adjacent residential neighborhood and the employees and customers of businesses located on the waterfront.

4.304 Waterfront Overlay District

(A) Philosophy

The purpose of the Overlay district is to allow additional protections to all waterfront districts when an alteration to existing conditions occurs. The Waterfront Overlay District provisions have the following purposes:

a) To preserve natural, recreational, scenic and historic values along the City of Troy's Hudson River waterfront, Poestenkill Creek and Wynantskill Creek.
b) To preserve, provide, and enhance recreation areas and other green space.
c) To provide a continuous bicycle/ pedestrian trail along the Hudson River.
d) To protect the public health and safety.
e) To regulate uses and structures along the waterfront to avoid increased erosion and sedimentation.
f) To recognize areas of significant environmental sensitivity that should not be intensely developed.
g) To allow reasonable uses of land on the waterfront while directing more intensive and non-water related development to the most appropriate areas of the community and region.[6]

The proposed development will meet the land use requirements of the new WCD zone and will be compatible with the Waterfront Overlay District provisions.

[6] City of Troy PC/Code Book for Windows.

Revised parking requirements were also enacted as part of these revisions as summarized below.

(F)

Parking: The following parking requirements shall apply only to 4.202 Waterfront Districts.

Assembly and packaging facilities	**1.75 space for each 2 employees on the larges shift, with a minimum of 2 spaces**
Branch Banks, Savings and loans, credit unions	**4 spaces per 1,000 square feet**
Child day care Center	**1 space for each staff member plus 1 space per 10 children**
Commercial or academic research and development facility	**2.7 spaces per 1,000 sq ft**
Construction industry facility	**1 space per employee**
Financial Institutions not otherwise included in this schedule	**3 spaces per 1,000 sq ft gross floor area**
Hotel	**1 space for each room and 1 space per managers unit**
Manufacturing use	**1.75 space for each 2 employees on the largest shift with a minimum of 2 spaces**
Mini-storage facility	**1 space for every 100 storage units and 2 spaces for permanent on-site managers with a minimum of 3 spaces for all facilities, regardless of size.**
Mixed Use	**Shared of combined parking standards shall be used to calculate needed parking. This calculation is based upon the gross leasable area for each shop or business and does not include atriums, foyers, hallways, courts, maintenance areas, etc.**
Neighborhood Retail	**50% requirement for retail uses in this Schedule**
Offices, general	**3 spaces per 1,000 square feet gross floor area**
Printing and Publishing	**1.75 space for each 2 employees**
Restaurant, excluding Take-out only	**12 spaces per 1,000 sq ft**
Restaurant, Take-out only	**1 space per 15 sq ft**
Retail use including shopping centers	**3.25 spaces per 1,000 sq ft**
Service Businesses (eg salons, barbershops, dry cleaners, Laundromat	**3.5 spaces per 1,000 sq ft**
Taverns, bars	**12 spaces per 1,000 sq ft**
Trucking and transshipment facilities	**1 space per 1,000 sq ft**
Warehouse	**1 space per 1,000 sq ft**
Wholesale and Distribution	**1 spaces per 3,000 sq ft**

The required parking for a maximized development of the site is 73 spaces for the UHRESC (2.7 *27k sq ft) and another 220 spaces should the remaining building space be developed for service businesses (3.5 * 58k sq ft) and restaurants (12 * 3.1k sq ft). As a result a maximum of around 300 spaces would be required under the zoning. A mixed use development including neighborhood retail is encouraged under the above parking regulations, as only 50% of the regular

Retail use parking is required (1.625 spaces per 1,000 sq ft). As a result a mixed use development of 58,000 sq ft neighborhood retail would add 95 spaces to the 73 required for the UHRESC resulting in an attainable parking requirement of 168 spaces. Other less demanding uses include manufacturing and printing/publishing.

The creation of large central public spaces in Building A and H might permit the utilization of the mixed use designation for calculation of spaces. As a result the required number of spaces would be significantly reduced. In Building A for example, about 1/3 of the building would be public open space, thus reducing the required number of spaces by about 1/3.

Special events might require extensive overflow parking which could be accommodated in informal plaza and lawn areas on the site. However, given the site's limited available space and a goal to limit the amount of on-site parking overflow spaces off site should be explored.

Alternative Development Scenarios

The 'bubble diagrams' and concept plans presented in this section represent a refinement and further exploration of ideas that first developed in the public workshops. A series of more refined sketches were reviewed following the workshops with the Technical and Citizen's Advisory Committees. The concepts presented are an attempt to illustrate how compatible uses could be joined to include the fixed program elements with other suggested program elements while creating a synergistic mixed use development. The sketches also reflect some sense of feasibility in terms of available site and building space; grading; opportunities; new mapping and site information; and allowable uses, parking, and zoning requirements.

The plan below has many elements common to all the concepts including:

- piers at the foot of Madison and at the Hudson/Poestenkill;
- a riverfront treatment with the Walkway/Bikeway,
- a pedestrian promenade and docks;
- a trail and promenade along the Poestenkill;
- a fluvarium at the northwest corner of the site;

- an expansion of Building H for the UHRESC;
- access between the UHRESC and research vessels docked on the Hudson is commonly shown as a bridge and lift system.

Concept A: UHRESC with Adaptive Re-Use and Undetermined Mixed Use Development

FIGURE 35: **Concept A.**

Concept A is a refinement of ideas generated at the public workshops. It serves as a 'reality check' for the overall feasibility of the project and helps communicate an understanding of the UHRESC site capabilities. Minimal parking is illustrated, barely meeting the requirements of the UHRESC facility alone. The goal in this plan was to retain as much greenspace as possible. Preservation of the existing buildings is suggested, but no specific uses are given other than use of Building H for the UHRESC. Key elements of this plan include:

- Perpendicular on-street parking on the Industrial Road and Madison Street;
- A representation of Building B with a hedgerow creating an outdoor room;
- A utility bridge and lift system to permit easy transfer of equipment between a docked research vessel and the UHRESC;
- A footprint for an expanded Building H that accommodates the space needs of the UHRESC;
- Large timber piers at the foot of Madison Street and at the confluence of the Poestenkill and Hudson;
- A subterranean fluvarium structure that is linked to the UHRESC by a tunnel;
- A pedestrian and bike trail bridge over the Poestenkill at the Hudson shoreline;
- Pedestrian promenades at the Hudson and Poestenkill shorelines.

Concept A was developed before the preferred alignment of the Industrial Road was verified by the City. The perpendicular parking illustrated in the plan is probably infeasible given the alignment illustrated on the plans that followed. The concept also shows piers and docks jutting into the Hudson River which would require an extensive permitting process with the Army Corps of Engineers because they would protrude beyond the pierhead and bulkhead line. That line is measured 6 feet west from the face of the concrete bulkhead at the mean high water line.

Concept B: UHRESC and Light Industrial, Large Scale Civic Use

This plan was developed to illustrate maximized surface parking on the site. As a result, several marginal buildings are eliminated to create parking including Buildings C, D, and E. The bubble diagram illustrates the lack of remaining land areas for the creation of green spaces and plazas. Key elements of Concept B

include:

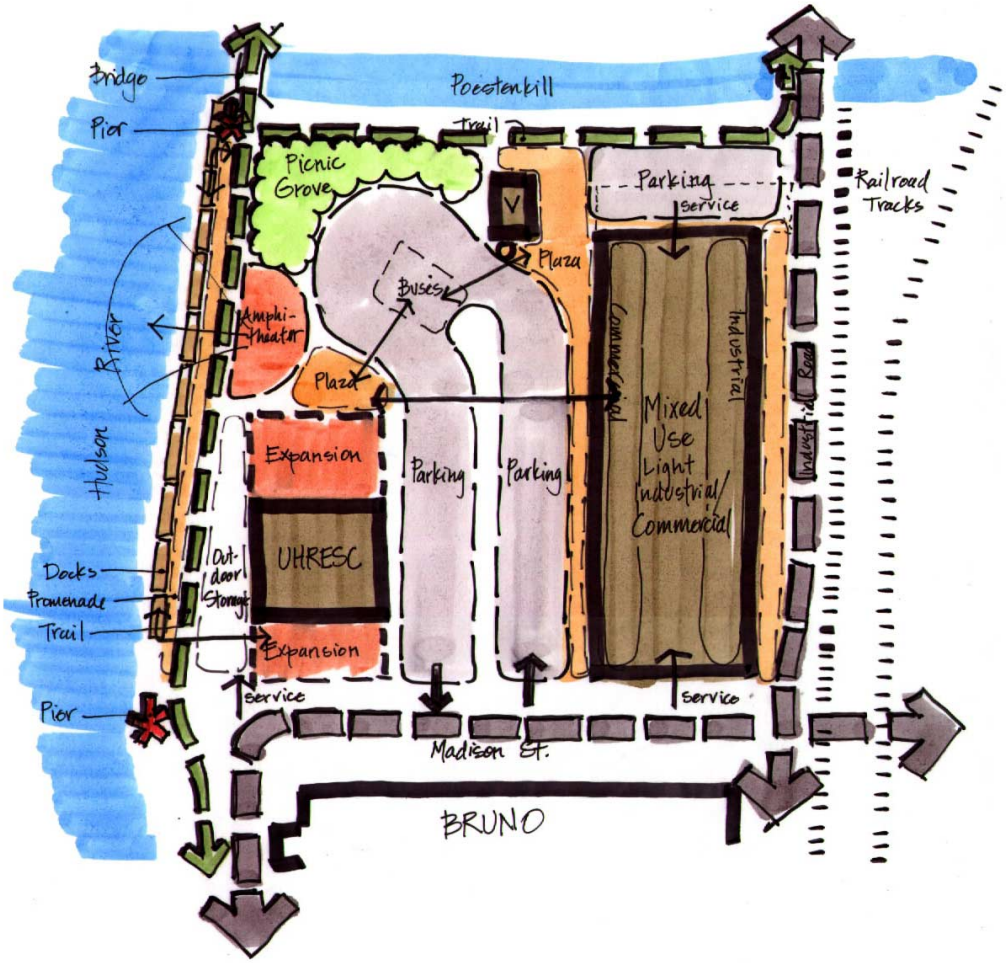


FIGURE 36: Concept B Bubble Diagram.

- Plaza space along the east and west facades of Building A;
- A mixed use of Building A that is light industrial in the eastern bays that border the future industrial road, commercial along the western bays adjacent the site interior, and an open public central bay which could be used for larger waterfront dependent industrial uses;
- A parking lot off the future industrial road where Building C presently exists;
- An amphitheater oriented towards the Hudson River which functions to take up the 10' grade change between the promenade and site interior;

- A dedicated bus parking area adjacent the proposed public entrance of the UHRESC and a Visitor Center in Building G;
- A small picnic grove is created at the northwest corner of the site, built on top of an underground fluvarium;
- A rain garden between bays of parking.

Parking is not shown on the streets, but could be created on both sides of Madison.

Concept C: UHRESC and Commercial and Light Industrial with Maximized Surface Parking

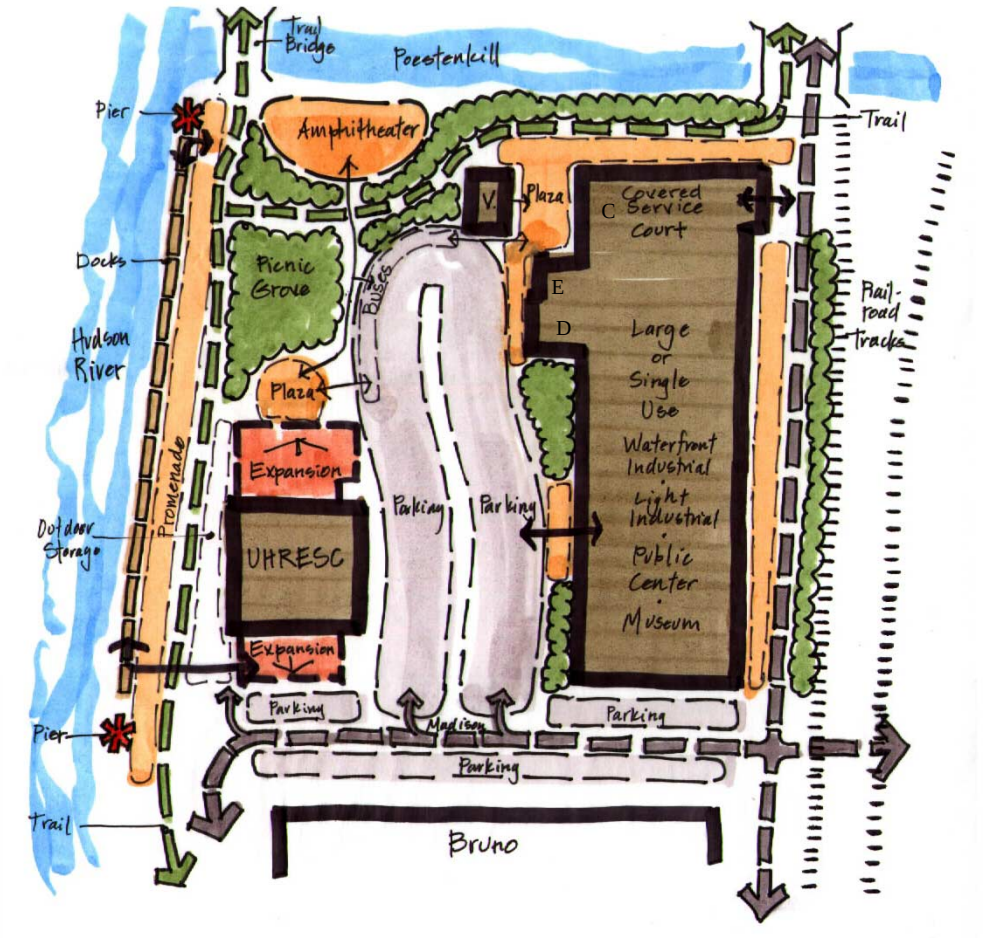


FIGURE 37: Bubble diagram for Concept C.

In this plan, the parking is reduced to allow for creation of more green and plaza space and to allow for retention and adaptive re-use of Buildings C, D, and E. Parking is created on Madison Street to help demand for spaces. In this concept development, a single use of Building A is proposed because the associated parking demand is likely to be low. Key site features include:

FIGURE 38: Bubble Diagram for Concept C

- An interior service court utilizing Building C;
- A single use for Building A that was either waterfront industrial, light industrial, public center, or museum space;
- A parallel parking area serves buses convenient to the public entrance of the UHRESC and a Visitor Center in Building G;
- A plaza space creating a contiguous pedestrian system between interior parking and the industrial road;
- A Hudson River Walkway/Bikeway Trail and Poestenkill Greenway Trail separated from the waterfront promenades;
- An Amphitheater on the Poestenkill which serves to eliminate some of the stability problems of the sheet pilings on the Poestenkill;
- A large picnic grove is created along the Hudson Riverfront adjacent the riverfront promenade;
- A rain garden between bays of parking;
- A buffer of street trees separates the future industrial road from the railroad right-of-way.

Concept D: UHRESC and Cultural Activity Center with Retail and Service

The key feature of this plan is the multi-level parking structure with a capacity of 369 cars. This concept illustrates that it is possible to accommodate more intense uses requiring greater parking capacity. A more intense use scenario might involve a very active site for large outdoor events in an amphitheater; large indoor/outdoor shows, markets, and receptions; and an associated number of service and retail uses to serve visitors and residents. The parking structure shown is based on the new facility at Rensselaer and if built with a basement level at 10'

below finished floor of the adjacent buildings, would not be taller than the lower parapet of Building H. The bubble diagram for the parking structure concept illustrates the placement of a large formal amphitheater in the northwest corner of the site. The garage structure also helps enclose the plaza space between it and the west façade of Building A, creating a very urban pedestrian street setting. While the structure results in a considerable gain in greenspace, it would be possible to create a smaller structure to gain additional greenspace and still provide more than adequate parking. Key features of Concept D include:

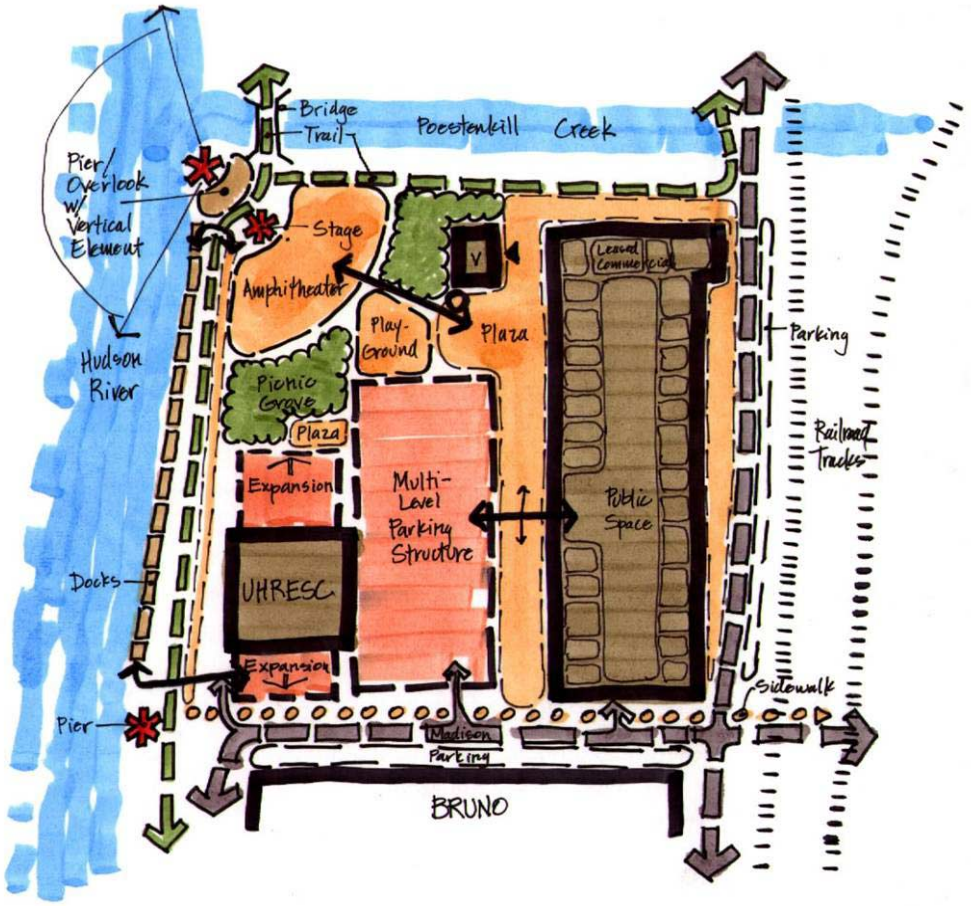


FIGURE 39: Bubble Diagram for Concept D.

- A large pedestrian street and plaza setting between Building A and the parking structure. This plaza would be wide enough to host outdoor markets and shows. The façade of the structure should be articulated to reflect an urban street setting.

- An adventure playground adjacent the amphitheater and plaza;

- Large landscaped picnic groves adjacent the amphitheater, UHRESC facility and visitor center in Building G.

- The fluvarium housed below grade under an observation deck structure at the confluence of the Hudson and Poestenkill.

- On street parking opposite the UHRESC site on Madison Street and the future industrial road.

- Intense mixed use development of Building A with the central bay maintained as public space and the side bays developed as commercial retail and restaurants.

A derivative of this development scenario with the amphitheater oriented to the north and adjacent the Poestenkill would create a large picnic grove adjacent the Hudson River Promenade.

Concept E: UHRESC with the Preferred Mixed-Use Development Plan

Concept E illustrates a combination of ideas from the previous four concept plans in a preferred alternative that is based on a presentation of the previous concepts and discussions with the Technical and Citizens Advisory Committee that followed. The need for expanded surface parking including buses is balanced with creation of desirable green and recreation spaces. A very strong system of pedestrian connections is suggested between the major elements. Buildings C and G are retained, but Buildings D and E have been removed. The overriding theme of this concept is the creation of a signature destination in the South Troy Waterfront. Mixed use of Building A would serve neighborhood needs, visitors, and UHRESC staff. Other key elements of Concept E include:

- Perpendicular parking on both sides of Madison and parallel parking on the future industrial road;.

- Building A is dedicated to public interpretive space and recreation in the open central bay and mixed use commercial, service, restaurant and light industrial in the lower bays;

- The Hudson River Walkway/Bikeway shares a wide pedestrian promenade along the riverfront;

- A promenade along the Poestenkill at a lower elevation than plaza level;

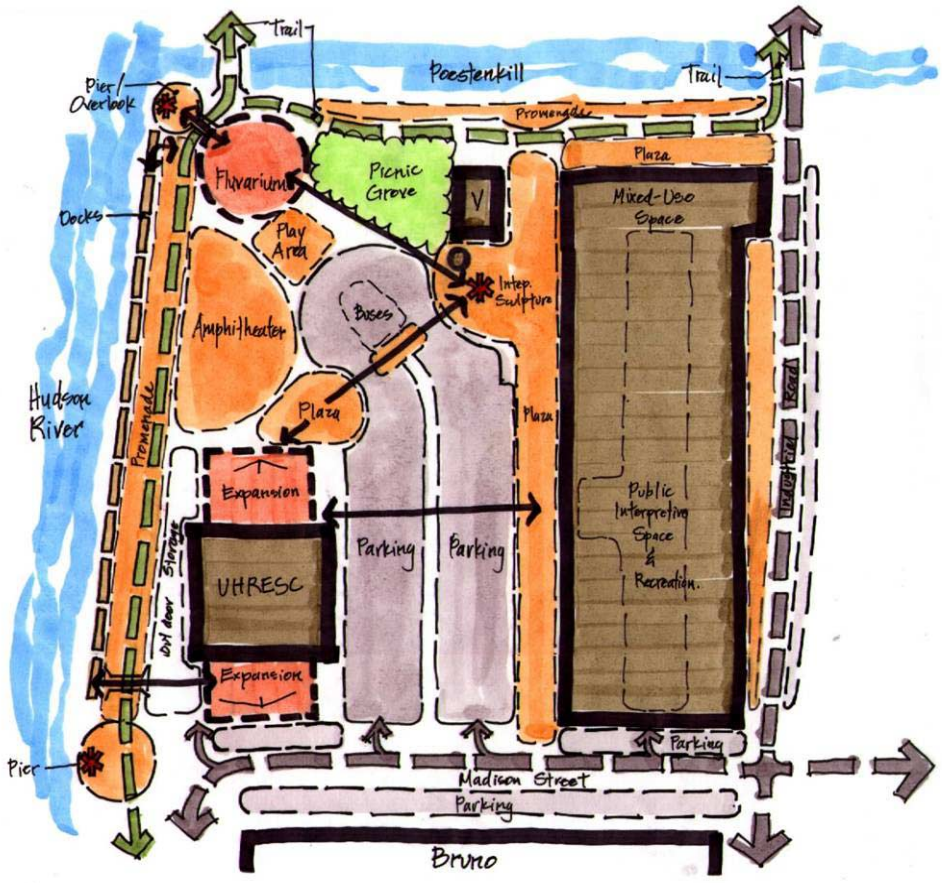


FIGURE 40: Bubble Diagram for Concept E.

- An amphitheater facing the river on the promenade with plaza and play spaces adjacent to it;

- Strong pedestrian connections between the UHRESC northern public entrance the visitor center plaza space and the Fluvarium, pier and overlook at the northwest corner of the site;

- Plaza spaces outside the UHRESC, Building A and Building C;

- Plaza space between Building A and parking creating an urbane pedestrian street setting, punctuated by an interpretive element at the intersection with the Poestenkill promenade;

- A surface fluvarium facility that would rise out of the site taking up the grade change like a turtle towards the river, with a roof top dining terrace;

- A pier structure with a raised platform at the Hudson and Poestenkill confluence that would serve an overlook and focal vertical element along the trail connections;

- Plaza and interior public areas would be used for a series of historical/cultural interpretive displays including large steel industry artifacts, and new focal elements would interpret lost structures or other appropriate history related themes.

Chapter 6

Interim Uses

The UHRESC project is likely to take many years to be fully implemented. Since it will be built on city-owned land, the city will probably seek ways to bridge the gap between the existing facilities and the final built project with suitable uses that will financially support the maintenance and improvement of the site in the interim.

Troy's ownership of the UHRESC site will allow the city to make minor improvements to the site and buildings that will prepare them for the preferred uses, allowing lease of indoor and outdoor space in the meantime. Those interim uses should pass three critical tests, they should be clearly short term, meaning five or fewer years in duration; interim uses should not include improvements that will not contribute to the eventual use of the site; and interim uses should not hinder public access to the UHRESC site waterfront. City zoning provides suitable guidance for uses as well; however, clearly short term beneficial uses not clearly permitted should be considered and reviewed by the City Zoning Board.

Suggested Interim Use Policy

- Interim uses should be compatible or related to future use of site as a public park and site of the Upper Hudson Rivers and Estuaries Satellite Center.

- Encourage interim uses of the site and buildings that will establish the site as a destination, public, waterfront, historical, an estuarine research center, and interpretive.

- Interim uses should be movable, low-intensity, requiring little public capital, should not alter the site or buildings contrary to the long term use and should be clearly short term.

- Interim uses should provide opportunities for public access, public observation of work in progress, public interaction, or public recreation to the extent feasible.

- Interim uses that are highly compatible with the preferred development plan for the UHRESC project should be given priority consideration.

- Interim uses should consider the needs of the residents of South Troy.

Examples of Interim Uses for Buildings A and H

"Showcase" Craftsman Light Industrial

This would include light manufacturing and fabrication, possibly related to historic iron and steel industrial uses of the site. Manufacture, assembly and repair of historic artifacts and manufacture of reproductions, models or replicas would be historically appropriate. To the extent feasible, this use should permit public access and observation/interpretation of work under way.

Maritime Museum/Maritime Industrial

Waterfront dependent use of the site would relate well to the establishment of the Rivers and Estuaries Satellite facility. The potential for boat building or repair adjacent the Hudson River could be done in either Building A or Building H. This should permit public access for observation and interpretation. Access to the Hudson and Poestenkill shorelines should not inhibited. One intriguing example of this use discussed in project committee meetings is the creation of replica of the *Monitor*. Once completed, the replica would be an interpretive centerpiece linking Civil War history with the Industrial Revolution.

Festivals/Receptions

Privately sponsored shows, conventions and receptions requiring large scale covered indoor space could easily be accommodated in either Building A or Building H. Such events would establish the site as a public venue fitting the preferred development plan and become permanently located at the site. Work required to stabilize and secure the buildings in preparations for such events is required as soon as possible, and interested parties might be in a position to contribute materially or financially.

Indoor Sporting Events

The tall central bay of Building A provides great opportunities for traditional indoor sports and emerging extreme sports. Skateboarding, rock climbing, soccer, basketball, indoor track and field, roller hockey, special events, tournaments, camps could be accommodated. Some extreme sport-related uses, such as a rock climbing gym might require permanent improvements. Those improvements might be encouraged if they are compatible with the preferred development plan.

Movie Studio

Hollywood has taken great interest in the City of Troy as a setting for filming movies. The vast openness of Building A would provide an excellent temporary studio facility for traveling filmmakers, historical productions and local productions.

Historic Artifact Storage, Repair, Refurbishment and Display

Demand for space for storage and display for large items impossible to store/protect in typical museums is an example of history related interim use of Buildings A and H. Stabilization of the existing buildings would be a pre-requisite for this use, but architectural rehabilitation costs might be shared by the city and a lessee. Related to the storage of artifacts is repair and refurbishment of historic equipment and machinery. Thomas Carroll of the Hudson Mohawk Industrial Gateway reported that there is a need for such facilities nationwide. Once repaired or refurbished, the items might become part of permanent interpretive displays at the UHRESC site. A clear link to the past suggested by Mr. Carroll is the potential to repair and refurbish carillon bells manufactured

locally, then display them as part of the project interpretive facilities or as a National Bell Museum.

Indoor/Outdoor Interim Uses

The site has potential for stand-alone interim uses including overflow for items that are too big to fit in the buildings, parking, outdoor events and markets. Interim uses of the site should not limit public access to the shorelines of the Hudson River and Poestenkill Creek. Ideally, these outdoor interim uses would contribute financially towards improvements that will advance the long term use of the project site. The impact of environmental mitigations on the site has yet to be determined, but some interim uses might contribute towards mitigation such as soil removal or placement of encapsulation fill.

Community Market

Outdoor permanent or special events markets could be held on the site offering the potential to hold indoor/outdoor markets for food, crafts, flowers, plant materials.

Community Center

Large community events linked to the Hudson River could be held on the site, thereby establishing the site as a public entertainment venue. Receptions and special events in the large open central bay of Building A might overflow onto the site.

Auto, Truck, Boat, RV, or Equipment Shows/Sales

Auto sales companies are always looking for a 'huge' event setting, and the UHRESC site would provide a highly visible (from I-787), temporary location for special sales/show events. Likewise, one-time sales or auctions of trucks, boats, RV's and heavy equipment could be held at the site. Boat sales could have the added feature of allowing a 'test drive' from temporary docks.

Boat and Recreational Vehicle Seasonal Storage

Indoor and outdoor storage of pleasure craft, competition craft from local schools and universities would be possible at the site. This use is not allowable under the revised zoning, but might be permissible on a temporary basis.

Overstock or Fleet Storage

Automotive dealers, recreational vehicles, boat dealers and others frequently need a location for overstocked items in preparation for seasonal and other special sales events. The site has potential for combined indoor/outdoor fleet storage or overstock temporary storage.

Temporary Training Facility

Law enforcement, corrections officers, coast guard, the FBI and other agencies need sites to use for various kinds of emergency and disaster training. The UHRESC site and buildings could provide a temporary setting for regular training or special training events.

Transitional Interim to Permanent Uses

Preference should be given to any interim use that is likely to transition into a permanent use that will be highly compatible with the preferred development plan for the UHRESC site. The following objectives can help determine when an interim use is highly compatible:

- Use provides or promotes public access to the waterfront;
- Use involves construction of piers or installation of floating docks;
- Use requires stabilization of existing buildings and does not require extensive interior modifications;
- Use establishes passive recreation on the UHRESC site;
- Use creates performing arts space on the UHRESC site;

- Use establishes the site as a location for public markets, sales, shows, or receptions;
- Use establishes or improves access to the site.

Chapter 7

Preferred Development Plan

The preferred development plan for the UHRESC should not be considered a blueprint for development of the project, but rather a template that can be adapted to changing local needs, policies and economics.

The creation of a conceptual design for the UHRESC is intended to be a starting point. The presented plan should not be taken as the only guide for development of the site. Guidance should be derived from a series of policy statements that clearly communicate the intentions of this project. Many of the ideas presented in previous versions of alternative development concepts could prove more fitting in the future as the site continues to develop, as the Rivers and Estuaries Satellite Center continues to evolve, as South Troy becomes reconnected with the riverfront, as use of the greenway trails becomes established and intense and so on. The dilemma faced when developing a specific set of elements to be incorporated is the fact that in five years, a completely new set of priorities might be more appropriate.

Suggested Permanent Use Policy

- The site should be developed as Public Open Space; Parkland with Access to the Hudson River and Poestenkill; accommodate the South Troy Greenway Trail and Poestenkill Greenway Trail; and accommodate the Upper Hudson Rivers and Estuaries Satellite Center.

- Encourage permanent uses of the site and buildings that will be compatible with the use of the site by the public, the proximity to the waterfront, local history, and potential interpretation opportunities.

- Permanent uses should be feasible; should not place a cost burden on the City; should complement and not compete with downtown; should complement and not compete with other local businesses; and should serve the needs of the community; and not compete with other community based organizations.

- Permanent Industrial uses should be compatibly scaled, related to the waterfront setting, and should not interfere with public access and recreation goals or interfere with the needs of the Rivers and Estuaries Center Satellite facility.

- Permanent uses should provide opportunities for public access, public observation of work in progress, public interaction, or public recreation to the extent feasible.

Chapter

8

Implementation Strategy

The Preferred Development Plan illustrates in concept and policy the intentions of the City of Troy, Rensselaer and Rivers and Estuaries. This strategy suggests how to attain the policy and plan goals, manage the project, finance, and phase the development.

This implementation strategy consists of a constructability analysis, probable cost, funding strategy, and phasing strategy for the preferred development plan and some alternatives. A series of management scenarios is discussed based on the continued ownership of the site by the City of Troy.

Constructability

Probable Construction Costs

Funding Strategies

The current development team for the UHRESC will be capable of attracting a wide range of funding opportunities for the project. With the City of Troy an entitlement municipality, Rensselaer a world class university, the Rivers and Estuaries Center a private not-for-profit and the NYS Department of State a state agency involved., almost every possible funding stream will be available. In addition, private funds secured by Rensselaer and Rivers and Estuaries towards the project can be used by the city as a portion of the match for state and federal funding for the project.

Funding programs available to the City will include a wide range of state and federal sources including brownfields redevelopment funds, waterfront development funds, historic preservation funds, parks development funds, trails funding, economic development funds, arts related funds, and transportation funding. The city may be able to leverage additional funds from those gained from any of these categories from the private sector.

In addition, the project is likely to be easily promoted, if not self promoting, especially if a unique entity such as a fluvarium is part of the project. A detailed list of applicable private, state and federal funding programs with typical program guidelines and deadlines is in Appendix L.

Phasing

Management Scenarios

The project could be operated in several ways assuming the City will continue to own the property. Operation, maintenance, and promotion might be turned over to a third party such as the Rivers and Estuaries Center, Rensselaer, a joint venture of both, an existing City Based Organization, or a 'Friends Of...' not-for-profit organization set up specifically for the purpose of operating and maintaining the City-owned facilities at the UHRESC.

Under this last scenario, a 'Friends of the Rensselaer Ironworks' would have to be established with the approval and participation of the other partners in the project, the City of Troy, The Rivers and Estuaries Center, Rensselaer, and the NYS Department of State.